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HEADACHES OF NASAL ORIGIN.

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In briefly considering the subject of nasal headaches, it would be manifestly impractical to enter into a general discussion of the various phases of this condition.

A paper of this scope will not permit of more than a small outline of a few predisposing causes and symptoms, with a few suggestions for treatment.

The largest percent of these cases will consult the Optometrist, Osteopath and Chiropractor before consulting their family physician. It is of personal importance that the family physician adopt a course of treatment, or refer the patient to a Rhinologist who will reflect credit upon himself, and produce the best results for his patient.

The profession in the past has been so indifferent about this class of cases, that these unfortunate patients have become an easy prey to the quack and cults, that thrive upon the ignorance of the laity.

After long years of diligent study and investigations made by Ewing, Mosher, Sluder and many others, the Rhinologist of today can successfully diagnose and treat these cases, if he will only profit by the information given by these early investigators of this class of cases.

The symptom headache is a condition that causes the medical men of all lines a great deal of annoyance, and when successfully treated, gives happiness to the patient and delight to the physician.

The causes of headache are so numerous, we must rely largely on the process of elimination of causes for our etiology and diagnosis, especially when we have a patient who has other pathology that frequently causes headaches of the different types.

The headaches of nasal origin for our convenience are divided into three classes: Vacuum frontal sinus headaches, Sphenopalatine ganglion neurosis and hyperplastis sphenoiditis.

VACUUM FRONTAL SINUS HEADACHE.

The vacuum frontal sinus headache is the most common of the three varieties.

For our study today, I will discuss only the non-suppurative type of vacuum frontal sinus headache, as the symptoms and history will readily lead to a diagnosis of the headaches caused by empyemas of the frontal sinus. The term vacuum headache calls our attention at once to the etiology of this form of headaches as a vacuum is formed when the air communication between the frontal sinus and the nose is interrupted. Any local condition of the nose which will close the fronto-nasal duct, will result in a vacuum headache.

For convenience as to the etiology of this condition, Dr. Jonathan Wright divides these cases into six classes. The first class is a normally thin septum, with the tilting of the septum to one side, which closes the vault of the middle meatus and its pouches. About 38% of the cases is of this variety.

The second class are those which appear clinically normal. By this I mean the middle turbinate is normal in size, tubercle of septum normal, and the vault of the meatus open. And those cases which give no history of having had empyema or coryza as starting of trouble. The closure of the fronto-nasal duct of this class of cases is a result of bony narrowing of the fronto-nasal duct because of the enlargement of the uncinate process which brings the bulla in contact with the uncinate process, thus closing the nasal duct. This class constitutes 24% of the cases.

The third class are those which have oedema of the vault of the middle meatus without special hypertrophy of the cavernous portions of the middle turbinate. These are the cases which develop polyps. This class constitutes about 15% of the cases.

The fourth are those which have hypertrophy of the middle turbinate, which closes the nasal vault, uncomplicated by suppuration or polyps. This class constitutes about 11% of the cases.

Read before the Eye, Ear, Nose and Throat Section, Oklahoma State Medical Association, Oklahoma City, Oklahoma.

The fifth class are those which have insufficiency of the vault. This is an anatomical defect. The middle turbinate simply laps down against the external wall, thus closing the nasal vault. About 7% of the cases are of this origin.

The sixth class are those which result from empyemas of the frontal sinus. About 3% of all cases are from this cause.

The symptoms of frontal sinus headache are so constant, it enables us to diagnose these cases with little difficulty unless complicated with other pathology of this region. Ewing's sign which is present in 99% of these cases, and which is reliable, enables us to make a diagnosis without question, when it is present. This sign is revealed by tenderness of the upper, inner angle of the orbit at the point of attachment of the pulley of the superior oblique, and internal and posterior to it. This sign must not be confused with the tenderness caused by pressure over the supra-orbital notch, which is always present in the normal subject. But with little care we can press our finger firmly against the floor of the sinus without making any pressure whatever over the supra-orbital notch.

A dull, nagging headache of the frontal region, increased by reading, and continuation of headache through the night, followed by morning headache, are symptoms which point unmistakably to a vacuum frontal sinus headache.

The increase of pain by reading is a symptom to which I wish to call your special attention. Many mistakes have been made in prescribing glasses for these cases when they needed treatment for a definite pathology.

The action of the superior oblique muscles pulling on this inflamed, thin floor of the frontal sinus through the attachment of the pulley causes an increase of pain on reading which is frequently mistaken for an error of refraction. The superior oblique muscle intorts, depresses and abducts the eye ball in reading. This abduction must be overcome by the action of the strong internal rectus muscle in reading. This counter-pull increases the effort of the superior oblique muscle which increases the pain due to the increased traction on the pulley.

The prognosis of these cases is relatively good when properly treated. The treatment resolves itself into the removing of the obstruction of the fronto-nasal duct.

The treatment is purely surgical in all chronic cases, while the acute cases respond to the proper medical treatment. The Rhinologist determines just what treatment is necessary, by recognizing the class to which the particular case belongs.

In the acute cases a cleansing alkaline irrigation, with frequent sprays of adrenalin chloride and hot applications to the frontal sinus region supplemented by steam inhalation of compound tincture of benzoin will usually effect relief in a short time.

In chronic cases all deflected septa should be corrected. All nasal polypi should be removed. All hypertrophied uncinated processes and bulla should be curetted, and those cases with a narrow nose and abnormal cavernous tissue of middle turbinate, should have the anterior third of the middle turbinate removed, thus giving ample space to the vault of the middle meatus.

SPHENO-PALATINE GANGLION NEUROSIS.

In taking up the study of spheno-palatine ganglion neurosis, I think a study of gross anatomy will help us in the understanding of the many seeming complex symptoms which are found in this condition.

The spheno-palatine ganglion is a small triangular, reddish-grey body situated in the upper portion of the spheno-maxillary fossa. It lies in close proximity to the spheno-palatine foramen, and just beneath the maxillary nerve. This sensory root has two or three filaments which pass from the maxillary nerve to the ganglion. Some of the fibres of this root are the dendrites of the gasserian ganglion. The motor root is the great superficial petrosal root which rises from the facial nerve in the facial canal. Here the great superficial petrosal nerve is joined by the sympathetic root, the great deep petrosal, which is a branch of the carotid plexus. The two great petrosal nerves fuse and form the vidian nerve which enters the spheno-maxillary fossa to join the nasal ganglion.

It can be seen from this brief description that the ganglion has vital connection with the facial nerve, the fifth nerve and its branches, and the sympathetic nerves of this region. This ganglion is so located that it can be easily effected by the various conditions of the upper air passages, owing to its close relation to the wall of the nose.

It lies at the upper margin of the spheno-palatine foramen, which is closed by a layer of mucous membrane. The symptoms of this neurosis are divided into two great classes, those which are neuralgic or painful, and those which are sympathetic

symptoms. The symptoms are characteristic of a neurosis of other parts of the body which are manifested by pain fleeting from place to place with no definite location. A pain at the root of the nose, in or about the eye, upper jaw and jaw-teeth, extending backward to the temple, to the ear, making earache, emphasized one inch back of the mastoid process, or even back to the occiput and neck, or in severe attacks, down to the forearm and hand, are symptoms which will justify a diagnosis of spheno-palatine ganglion neurosis, especially if we have interference with the sense of taste. Sympathetic symptoms are vasomotor and secretory. It is difficult to separate these symptoms, because the sympathetic plays a prominent part in the pain symptoms also.

This sympathetic irritation causes coryza, paroxysm of sneezing, hay fever or even asthma. The eyes become reddened, profuse flow of tears, and itching and burning accompanies the lacrimation. These symptoms are the result of irritation of the nerve endings located in this region. One point we should always keep in mind in making a diagnosis of these ganglionic neuroses, is the shifting of the pain from place to place, and the mucous membrane irritation of the nose, and the conjunctiva.

The prognosis of this form of headache is not as favorable as that of the vacuum headaches, because of the various ramifications of the nerves connected with the ganglion. If a lesion is of the ganglion proper, or of the trunks distal to the ganglion, treatment can be very easily instituted. But if the lesion is central to the ganglion, it makes the treatment much more difficult, except in the vidian nerve which becomes inflamed from an empyema of the sphenoidal sinus. The treatment is both medical and surgical, but the medical treatment is more important. Local applications of cocaine, diluted solutions of phenol to the mucous membrane surrounding the spheno-palatine foramen will frequently relieve these patients for months, and sometimes effects a cure. If the local applications do not relieve the condition, Sluder recommends injections of phenol and cocaine with a long straight needle, or a slightly curved one, into the ganglion, or infiltrated around the ganglion. We should remove all pathology which interferes with the normal functions of the nose. This procedure will effect a cure without further treatment in a number of those cases which are thus complicated.

The results of the removal of the spheno-palatine ganglion have been disappointing.

There is another division of nasal headaches of which I will only mention. That is the hyperplastic sphenoiditis. I mention this because the vidian nerve becomes involved in this condition which brings on an attack of ganglion irritation as described above. This form of neuralgia will not be cured by local applications to, or injections into the spheno-palatine ganglion, because the lesion is central to the ganglion. To treat this condition, a treatment for the sphenoidal sinus inflammation must be instituted, which may be an irrigation of the sinus, or the removal of the anterior sinus wall, as the severity of the pathology may require.

In conclusion, I will say, that a little time spent in careful investigation by the physician, into the history and symptoms of the attacks, he will be able to diagnose these cases, and recommend the proper treatment for the same, thus relieving their patients of much suffering and annoyance.

SPHENO-PALATINE GANGLION HEADACHES.

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The rhinologist is confronted with a perplexing problem in diagnosing and treating the various types of headaches. Nasal headaches vary in degree from a mild form to the type described as migraine and sick headache, and may occur at irregular or frequent intervals extending over a period of years. The patient suffers greatly and the daily routine is sometimes interfered with to such an extent that it is impossible to carry on the usual vocation. Such headaches are too often described as neurotic and temporarily relieved by some analgesic. Careful investigation of these cases will show that they belong to the group described by Sluder as spheno-palatine headaches.

The spheno-palatine ganglion, Meckel's or nasal ganglion is a rounded triangular ganglion lying in the pterygo-palatine fossa close to the spheno-palatine foramen. It is suspended loosely from the trunk of the maxillary nerve by the (second and third) spheno-palatine nerves, which form its sensory root. In addition to this main root it receives a second, the nerve of the pterygoid canal (Vidian nerve), which passes through the corresponding canal of the

pterygoid process of the sphenoid, and really consists of two nerves usually very closely united in their course through the canal, one of which is the motor, the other the sympathetic root of the ganglion. The motor part of the nerve is the greater superficial petrosal nerve, a branch of the geniculate ganglion of the facial nerve. The second component of the nerve is the sympathetic root of the ganglion and is known as the deep petrosal nerve. The greatest dimensions of the spheno-palatine ganglion is a little more than 5. mm.

The branches of the spheno-palatine ganglion are:

1. Small orbital rami to the orbit.
2. Posterior superior lateral nasal rami supplying the mucous membrane of the superior nasal meatus, superior and middle nasal conchae, also part of the membrane of the sphenoidal sinus and posterior ethmoidal cells.
3. Posterior superior medial nasal rami which supplies the mucous membrane of the septum in conjunction with the naso-palatine (Scarpa's) nerve.
4. The posterior inferior nasal rami supply the posterior part of the lateral wall of the nose.
5. The palatine nerve is divided into anterior, middle and posterior supplying respectively the mucous membrane of the hard palate, palatine tonsil and the uvulae (Sabotta).

Unfortunately the various text books do not explain the relation of the ganglion to the surrounding structures such as the necessary sinuses. In order to become more familiar with such relations one should carefully consult the studies made by Sluder.

The etiology has been attributed to foci of infections and metabolic disturbances. Sluder and Pollock attribute the condition to local and inflammatory disturbances in the region of the ganglion. In my experience this cause has predominated.

The affection is divided into two great classes; the neuralgic and the sympathetic. The symptoms of the neuralgic class consist of severe pain extending to any and all points supplied by the branches of the ganglion. The usual location of the pain is in and about the eyes, radiating to the temple, behind the ear and frequently into the neck. Occasionally the pain extends to the occiput and the tonsillar region. In some cases the pain extends to the teeth, and many needless extractions have been made as the result of a hasty diagnosis. In one of my cases the patient had all of the upper teeth extracted in order to gain relief, but the pain persisted.

The sympathetic group is characterized by sneezing and lacrimation plus the severe pain which has been described under the neuralgic group. The attacks occur during any period of the year and are not associated with the ripening of pollens. The patient may sneeze four or five times but it is not uncommon to exceed twenty or more. The nasal membrane becomes swollen and difficult breathing is soon noticed. The eyes are usually red and the conjunctiva is injected. In a few cases I have known the symptoms to last for a period of one week, during which time the patient was never free from pain, and was subject to repeated attacks of sneezing.

The appearance of the nose between attacks is usually normal. The secretion is thin and watery, and may be so profuse as to cause excoriation of the upper lip.

It is not within the scope of this paper to state why some cases present symptoms of the neuralgic, and others, symptoms of the sympathetic group. Hunt states that the peculiar phenomena occur in other ganglion, as for instance the lenticular ganglion.

In the diagnosis of spheno-palatine headache it is practically impossible to reach an absolute diagnosis unless the patient is seen during an attack and relieved following an application of cocaine to the region of the spheno-palatine ganglion. Migraine and headaches of other types may be slightly relieved following the use of cocaine in the nose, but the true spheno-palatine headache is immediately relieved by the above mentioned procedure. In order to rule out neurotics and feigners an application of sterile water is used in the place of cocaine.

The prognosis in spheno-palatine headaches is bad if they are untreated, but excellent results can be obtained if the cases are carefully studied and the proper treatment instituted. Even though the symptoms recur within a period of three to six months, the patients are grateful for the temporary relief.

In the treatment of these cases all pathologic conditions of the upper respiratory tract should be corrected. Various remedies and surgical means have been employed in the treatment of this affection. Barlow reported excellent results following the application of silver nitrate solution to the area surrounding the ganglion. The efficacy of alcoholic injections of nerves was established by the animal experimentation of May, who showed that in-

jections do not completely destroy the nerve fiber and cells, as they recover their function a few months later. The function of the nerve is inhibited, and during that period the symptoms cease. If the headache responds to the application of cocaine to the region of the ganglion good results can be expected following an injection of alcohol. I employ the technique as described by Sluder: The posterior end of the middle turbinate is first cocainized by means of a cotton applicator saturated with a twenty per cent solution of cocaine. Then a sword needle about five inches long, is introduced from the septal side of the nose passing through the posterior end of the middle turbinate. The needle is pushed upward, outward and backward through the bony wall which serves as the anterior boundry of the spheno-maxillary fossa. One can feel the needle slip into the cavity after passing through the bony wall. A syringe filled with alcohol or a two per cent solution of phenol in alcohol is injected. The average amount injected varies from five to fifteen minims. The ganglion may be penetrated by the needle and a sharp pain is felt. In the majority of cases the ganglion is only bathed by the solution injected. The pain following the injection may last for a period of a few minutes to twenty-four hours. In cases where the ganglion is penetrated or thoroughly bathed one injection will suffice. In one of my cases it was necessary to make three injections before relief was secured.

CASE HISTORIES.

Case 1. Miss M. C., aged 38, consulted me in December, 1921, on account of severe headaches beginning in the frontal region and extending to the occiput. The patient complained of frequent headaches associated with sneezing spells, which were followed by watery discharge from the nose. The attacks began about one year ago and have gradually increased in frequency, often occurring daily for a period of one week. Examination of the ears, nose and throat were negative. Vision and fundus normal. General physical examination including laboratory examination of blood and urine was negative. Cocaine applied to the region of the spheno-palatine ganglion gave the patient immediate relief. The ganglion was subsequently injected with phenol-alcohol solution and the patient has been free of all headaches.

Case 2. Mrs. J. B., aged 42, was examined in January, 1922. The patient complained of headaches beginning in the nose, extending to the eyes and frequently involving the mastoid region. At times the pain was noticed in the roof of the mouth. The headaches began about two years ago and the attacks have gradually increased in frequency. The attacks frequently last for a period of two or three days during which time the patient is never entirely free from pain. Opiates were used by attending physician during several attacks with only temporary relief. General examination including eye, ear, nose and throat was negative. Following the injection of the ganglion the patient complained of severe pain lasting for a period of six hours. The following day the headache failed to recur, and with the exception of one mild attack about four weeks later the patient has been free from pain.

Case 3. Miss M. T., aged 27, was referred to me on account of headaches. About nine months ago the patient began to have severe headaches which occurred at any period during the day. Prior to the onset of pain the patient would begin to sneeze. This was followed by a watery discharge from the nose, at times very profuse. The attacks gradually increased in severity and frequency until the patient was frequently confined to bed for a period of one to two days. The pain first began in the back part of the nose and eyes, later extending to the side of the face, occiput and tonsillar region. At times the patient felt a shooting pain in the teeth and four extractions had been made without relief. Examination of the eyes, ears, nose and throat was negative. General physical examination including laboratory examination of the blood and urine was negative. Following one injection of the ganglion the patient was relieved.

CONCLUSIONS.

The spheno-palatine ganglion headache is a clinical entity.

The diagnosis is easily made following the application of cocaine to the region of the ganglion.

Feigners and neurotics are readily ruled out by means of a sterile application of water to the ganglion.

The injection of a solution of phenol in alcohol is the treatment of choice.

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TRACHOMA.*

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This disease should receive more than passing notice from all medical men on account of its prevalence among the indigent population of our state, and on account of the certainty that it is the cause of many cases of blindness which will sooner or later become a charge on the community or state.

Every practician should be alert to recognize the early symptoms of the disease and either give or direct them to competent aid that relief may be had before irreparable damage has been done to the vision, and many additional infections developed from the patient not knowing his condition or that he is distributing a very serious disease to those with whom he comes in contact.

Trachoma should be recognized before it has made the inroads on the victim to the extent of heavy scarred furrows in the conjunctivae and cupped tarsal cartilages which resemble a piece of old dried leather in elasticity, with the border of the lids turned in and acting as a scraper on the cornea and which is constantly destroying the corneal surface and developing a panus which forever more or less impairs the vision.

In the early stages it will be recognized by the general weak-eyed aspect of the patient as he presents himself for examination, having excessive lachrymation with often a muco-purulent discharge, and on inspection the conjunctiva will be found very hyperemic with the adenoid layers thickened and spongy, papillae elevated and tense, with the trachomatous granules lying in the spaces between the papillae, showing a slightly yellowish cast and the whole area often bathed in a slightly grayish clinging exudate.

In Egypt it is said that more than eighty per cent of the population is infected with trachoma and they have lived in this condition for many years. This seems to be the most prolific source from which the infection reached the European countries. Through the medium of Napoleon's army which came out of Egypt with seventy per cent infected, the disease was spread throughout Europe and since that time it has been trickling into the United States through European immigration until now we have an ample supply from our own sources which are scattered throughout the entire country.

It has been reported that eighty per cent of the Indian population of Oklahoma is infected with trachoma. I think this is exaggerated to some extent from my observation of the Choctaws among whom I have lived for twenty-five years. But even fifty per cent or forty per cent would be a very serious condition to exist within our state, and one which calls for active interference or we may have a hot-bed in our midst equal to that of Egypt.

Many methods of treatment have been devised and used from the old painful and efficient pencil of copper sulphate to the up-to-date radio-therapy.

The bluestone pencil has been the means of blotting out a great many trachomatous granules and of course leaving after it in many cases rough scars to keep up the impairment of vision. But they are responsible for eliminating many sources of infection which could have been multiplied into many hundreds of cases had the pencil not been used.

Next came the mechanical treatments such as grattage and forceps compression which has the same objection that scars so often follow their use, but they too have served a good purpose and their use has checked a great many chains of infection.

Resection of the tarsal cartilages has given relief to some of the victims, and it too has had some setbacks on account of the ultimate results of deformity which follows in some cases.

The Tarsal Massage treatment as advocated by Dimitry of New Orleans, has some things in its favor. The treatment consists of squeezing out the contents of the granulations by compressing the everted lids between the thumb and a roller made of a metal rod above five or six millimeters in diameter on which is wound a small amount of absorbent cotton which is made firm by saturating with a solution of boric acid or 1-5000 bichloride.

The patient is anesthetized, the lid

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everted, and the process of ironing-out as it were, the entire trachomatous surface by pressure against the thumb and a rolling motion of the padded rod. By this process you are able to leave the surface in good condition with minimum traumatism for the production of the troublesome scar tissue which so often follows many of the other methods. In addition to the squeezing out the contents of the trachoma bodies with a minimum damage to the conjunctiva, we are able at the same time to soften and make pliable the hardened tarsal cartilages by repeatedly rolling the folded lids under pressure in all directions until they are soft and pliable, and thereby relieving that source of trouble for the time being at least, and if there should be a trace of the trachoma left which begins to show up afterwards, the treatment should be repeated in a thorough manner.

When I first used this method, it was under local anesthesia that I would undertake the treatment, but on account of the liability to give the patient severe pain, I would often not do the job as thoroughly as it should be done and it required repeated sittings in order to clear up all the area involved, but with general anesthesia you are able to do the work well and often complete the job with one operation and give your patient relief for many months if not at times to give permanent relief.

I have had pannus to clear away entirely in a short time after a thorough massage with this method and the patient to be entirely relieved of his trachoma.

This paper is written only with the idea that the discussion by the advocates of the different methods will broaden our conception of this menace and put some "pep" into the subject of the much-talked-of "granulated sore eyes.'

Discussion: DR. CHAS. B. BARKER.

In the treatment of trachoma, there is no one drug or method that seems to fit every case, and I believe there are many cases that are overtreated, *i. e.*, too strong drugs, and too much scarifying. The whole treatment, both medicinal and surgical, sums itself up into the amount of stimulation, which the case in hand demands, and quite often the amount of stimulation required for the lids, produces deleterious effects on the cornea, which should be considered in every form of the treatment.

The granulation tissue in trachoma is first and most frequently localized in the area of the conjunctiva where the excretory ducts of the lachrymal glands empty, and it has been found that the disease diminishes in proportion to the dimunition of the amount of the secretion of the tears and the best drug for lessening the amount of secretion in trachoma is an application of silver nitrate, well up into the fornix, and where the excretory ducts of the lachrymal glands empty.

Some cases seem to be self-limited, due to the fact that these ducts are closed, by the cicatricial tissue, resulting in a greatly diminished secretion of tears. If the eye is not too moist, copper sulphate stick well up in the fornix, with hot bichloride of mercury irrigations, are indicated. When the tarsal cartilage becomes broad and thickened and cardboard like and causes constant irritation of the cornea, a tarsectomy gives very gratifying results.

THE EARLY DIAGNOSIS OF INTRACRANIAL INVOLVEMENT OF OTITIC ORIGIN.

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Owing to the time limited for this paper our discussion will be limited to meningitis and brain abscess.

Knowing that most infections of the intracranial structures are the result of a direct invasion by the pathogenic organisms from the middle ear or mastoid we can readily appreciate the probability of meningeal pathology preceding that of abscess formation.

The early symptoms of meningitis of otitis origin are in many respects no different from those of meningitis from other causes and some of the methods employed in making a diagnosis will be applicable as well to meningitis from other sources.

I take it for granted that you are familiar with the clinical picture of a well developed case. The mental disturbance, high fever, severe headache, choked disc, Kernig sign, posture of the body, Babinski's sign, Cheyne-Stokes respiration, etc. There must be, however, in the development of meningitis an early stage when these signs and symptoms are not present.

Kopetsky considers the signs and symptoms of meningitis to be due (1) to an increased intracranial pressure and (2) to the bacteria and their toxins together with a disintegration of nerve tissue.

Let us classify meningitis of otitis origin as either circumscribed or diffuse, either of which may be serous or purulent.

Of the symptomatology of the circumscribed form very little can be said, the diagnosis is usually made on the operating or post-mortem table. However, there are certain signs and symptoms when present that justify a diagnosis. A localized headache in the temporal region rather than a severe pain in the ear, together with a tenderness over the Zygoma or post-mastoid region, occurring in the course of an acute otitis media or an acute exacerbation of a chronic otitis media is a fair indication that there is some meningeal involvement.

The path of infection in these cases is usually through the labyrinth, either directly through the internal auditory meatus, or through the aqueductus vestibuli or acqueductus cochleae. Any involvement of the labyrinth will cause a nystagmus. In the beginning it may be directed toward the infected side, that is, if the lesion is only irritative in character. As the labyrinth becomes more generally involved the process passes from an irritative stage to one of paralysis. At this point the nystagmus is distinctly towards the sound side. As soon as the process passes beyond the labyrinth, that is, as soon as there is a meningeal involvement which will cause an irritation along the vestibular nerve there will be a rapid return of the nystagmus to the involved side. This is not a difficult sign to elicit and is one for which we should look in all cases of acute middle ear infections.

Many cases of the circuscribed form of meningitis show no definite or localizing symptoms until the barrier formed by nature is overcome and the condition becomes diffuse.

Whether the diffuse form is serous or purulent depends largely upon the virulence of the infecting organism and the resistance of the patient to its invasion.

The bacterial invasion of the tissues of the central nervous system will consume all of the available carbohydrates present in the cerebro-spinal fluid. This can easily be determined by making the copper reduction test which will be found negative except in the slowly developing cases of tubercular meningitis. The disappearance of the carbohydrates from the cerebrospinal fluid is a very early sign of bacterial invasion of the central nervous system and has been found constant in all cases examined.

In cases with meningeal symptoms such as the meningeal signs of pneumonia, typhoid fever, general sepsis, etc., where there is no direct invasion of the central nervous system, the sugar reaction will be positive. Thus an easy means of differential diagnosis is afforded.

At the same time when we find an absence of sugar in the cerebro-spinal fluid, we find varying degrees of acidity and the presence of lactic acid. This is due to an acidosis of the tissue, the cause of which is problematical. There will also be found an increase in the amount of albumin together with an increase in the potassium salts and a decrease in the sodium salts.

Early in the disease there is an increase in the amount of cerebro-spinal fluid, thereby causing an increase in the intracranial pressure. This in turn causes a strangulation of the blood vessels of the optic nerve which gives an opthalmoscopic picture fairly constant and highly significant. There is a swelling of the papilla and a blurring of the outer margin of the optic disc. This is an early sign and should not be confounded with the choked disc found later in the disease.

When the intra-cranial pressure reaches a certain point and there is an encroachment on the vital centers, the fight for existence starts, manifested by signs from the respiratory, vasa-motor and Vagus centers. One of the manifestations is a progressive rise in blood pressure. This should be taken hourly during the early stages and recorded. After paralysis of the vital centers begins the blood pressure estimations lose their value.

An examination of the blood is frequently of value. As a rule a high leucocytosis will be found and a decided increase in the polymorphonuclears—85-90%.

Neuro-muscular symptoms often appear early in the disease, *e. g.*, we may have a contracted pupil on the affected side and not infrequently a paralysis of the sixth cranial nerve on the corresponding side causing an internal strabismus. Stiffness of the neck is an early neuro-muscular symptom occurring in both adults and children but more especially in infants. An exaggerated patellar reflex is next in importance as an early sign. Many other signs and symptoms are present later in the disease but are of little value in making an early diagnosis.

Unlike most cases of meningitis and brain tumor that produce an increase of intra-cranial pressure by an increase of the

substance within the cranial cavity, brain abscess is a destructive process and replaces normal structure so that unless there is obstruction of the circulation of the cerebro-spinal fluid or an occlusion of some fistulous tract that is draining the purulent secretions there will be no increase of intra-cranial pressure, hence the lack of such symptoms are only of negative value.

Brain abscess is essentially an acute condition although it may pass from acute to a chronic stage with very little symptomatology and remain undiagnosed until some acute exacerbation or extension of the process changes a latent condition to one of activity with manifest symptoms.

The initial stage is frequently passed unrecognized, the symptoms being obscured by the ear involvement. When marked the initial stage will show symptoms of intracranial involvement due to meningeal irritation.

The latent stage may or may not show a definite symptomatology. During this stage there will usually be some disturbance of the sensorium manifest by stupor, restlessness, dullness, lethargy, drowsiness, somnolence, apathy, indifference, change in disposition, insomnia, delirium, etc. Headache accompanied by a slight rise in evening temperature may be the only symptom. During this stage periods of remission occur when the patient is in apparent good health. This period varies from a few days to many years and may gradually or suddenly pass into the manifest stage which presents a more definite clinical picture.

During the manifest stage one or more of the following symptoms are present from which we make our diagnosis:

A relatively slow pulse although by no means constant is of diagnostic importance. Vomiting is probably not a symptom of brain abscess *per se*, but a manifestation of meningitis especially involving the basilar meninges, therefore we should not look for this symptom early in the disease. Its absence is of no significance while its presence probably means an associated meningitis and an unfavorable prognosis.

In temporo-sphenoidal abscess symptoms of aphasia are common. In the cerebellar we are more likely to have nystagmus and symptoms of inco-ordination.

The blood picture in acute cases is that of a purulent formation while in the chronic cases there will be but a slight increase in the cell count.

The cerebro-spinal fluid is usually under slight pressure but clear until its cellular contents have become markedly increased from a purulent meningitis or rupture of the abscess into one of the ventricles.

There is no one symptom or group of symptoms pathognomonic of the disease. There are no symptoms that may be definitely stated as early manifestations. In children practically all the symptoms may be present in an uncomplicated case of acute otitis media, therefore the diagnosis is exceedingly difficult in the presence of the original focus of infection. If the symptoms continue after the original focus of infection has been removed then and only then are we reasonably sure of our diagnosis.

After we have made a diagnosis of brain abscess we attempt to localize to some particular area. This again becomes in many instances a difficult matter—however, there are certain signs and symptoms that are common to certain areas and are presented as follows:

In cerebellar abscess the mentality is less affected—there is no delayed cerebration Optic neuritis, choked disc, abducens and motor oculi paralysis are more common in the cerebellar. Lack of muscular tone and weakness on the same side as the lesion in cerebellar—on the opposite side in temporo-sphenoidal.

Both upper and lower extremities involved in the cerebellar—usually only the upper in the tempro-sphenoidal.

Aphasia of both motor and sensory type is more common in the temporo-sphenoidal. Disturbances of speech in the cerebellar present bulbar characteristics. Conjugate deviation of the eyes and nystagmus together with ataxia is indicative of cerebellar. Inco-ordination and a tendency to fall in a definite direction suggests the cerebellum as the site of the lesion. In a right sided cerebellar abscess, *e. g.*, the right arm deviates outward or to the right when attempting to make contact with a stationary object with eyes closed. We also use this pointing test to differentiate the cerebellar lesion from labyrinthine involvement. In a normal individual if the left ear is douched with cold water, both right and left arms will pass a point to the left while in a right sided cerebellar abscess the left arm will go to the left but the right arm continues to deviate to the right. If there is labyrinthine involvement there will be loss of vestibular reaction when the test is applied to the diseased ear. Stiff-

ness of the neck is more common in the cerebellar and the headache is more highly intensified upon the slightest movement.

In conclusion, let us summarize the most important of the early symptoms of meningitis:

If the path of infection has been through the internal ear and the labyrinth has been affected our first indication of a meningeai involvement will be a change in the direction of the nystagmus. In cases where there has been no labyrinth involvement we find a progressive increase in blood pressure as the first significant sign. The early ophthalmoscopic picture is next in importance. The early neuro-muscular symptoms together with a careful examination of the cerebro-spinal fluid will complete our determinations. A negative sugar reaction, an acid reaction to litmus, the presence of lactic acid and albumen, an increase in potassium salts, supplemented by a bacteriological examination will confirm our diagnosis of meningitis long before many of the classical signs and symptoms become manifest.

We are disappointed in not being able to present certain signs or symptoms as early manifestations of brain abscess. However, I do emphasize the importance of a careful and accurate history regarding chronic ear and sinus infections, periodic headaches and sensorial changes which may lead us to a correct diagnosis in an otherwise obscure case.

SYPHILIS OF THE INTERNAL EAR.

W. T. SALMON, M. D.,
Oklahoma City.

It is my pleasure to present for your consideration one of the richest rewards which the delvers of the obscure have given to the otologist within the last century.

Located as it is, occupying such a tiny space, in a bone so securely hidden, and surrounded by such vital structures, it is not surprising that the inner ear remained, for so long a time, a mysterious field where only the bold dare to penetrate.

Instead of being one organ, it is now definitely settled that the inner ear is composed of two parts whose functions are entirely distinct; the cochlea is the organ of hearing and the kinetic static labyrinth, consisting of the utricle, saccule, and three semi-circular canals with its nerve pathways connecting it with the nerve centers in the brain is the organ of equilibration.

Too much credit can not be given to the research workers, who, by their arduous labors, have given to the world that enlightenment that makes this a field in which the ambitious may not venture.

It has been pointed out on numerous occasions the credit that is due Robert Barany for his untiring zeal in developing the knowledge he has furnished on the labyrinth for which his contributions brought him the Noble prize.

While this information makes it much easier to diagnose the lesions that may occur in the labyrinth, syphilis, upon the other hand, while one of the oldest and most familiar diseases with which the physician has to deal, is often so elusive that it leads us far astray. Especially is this true of syphilis of the internal ear as we must be guided by symptoms that might result from various and sundry diseases.

Syphilis cannot reach the labyrinth or brain except through the blood and other fluids of the body but it often does without any other symptom except the initial sore which may heal without treatment or recognition. Dr. Archibald Church, whose estimation is based on clinical histories and by objective signs, both in private and hospital practice, indicates that about 20-25 per cent of all adult males are syphilitic, or that one man in every five have syphilis in some form.

It would be interesting to know, if it be true that so many are syphilitic, what per cent of them have or will develop syphilis of the nervous system and still more interesting to know exactly what per cent have or will have syphilis of the labyrinth and its connections.

Owing to the improved method of diagnosis this condition is thought to be much more prevalent than was formerly supposed, and a deafness without an apparent middle ear trouble, showing a marked shortening of bone conduction should at least be put down as a suspicious case.

It has been estimated, by those who speak with authority, that children who suffer from congenital syphilis usually have a loss of hearing and that from 33-60 per cent of them have neuro-labyrinthitis.

Regardless of whether syphilis is hereditary or acquired, there is a group of symptoms that may be called classical that will assist in the diagnosis when the inner ear is involved.

For some reason, that has never been satisfactorily explained, possibly from lack

of neurilemma, the eighth nerve is attacked more frequently than any other cranial nerve, and as the cochlea portion seems to be more vulnerable than the vestibular portion is an explanation why the first symptoms the patient will notice will be tinnitus and loss of hearing. The tinnitus is abrupt in its onset and is most severe in the beginning of the disease and whether or not it is affected by the treatment it grows less as the destruction of the nerve progresses.

In the hereditary syphilis the loss of hearing may be gradual, sometimes extending over a year or more. However, there are recorded cases where children have lost their hearing over night. I am of the opinion that if the truth could be known of these cases, they were neglected with the usual symptoms coming on gradually and extending over several months, which the parents failed to recognize.

In the acquired syphilis, the hearing may be lost in a gradual way, but this is the exception, and as a rule the history of most cases will show that the hearing was lost suddenly or at least within a few days.

It should be called to your attention here that there are a variety of diseases that may cause the sudden loss of hearing and that a diagnosis should not be made upon this one condition.

But you should bear in mind that the course of the acquired form is rapid, and if rational early treatment is not given, it results quickly in irreparable damage either to the hearing or to orientation or most usually to both.

Any of these cases may have otitis or any other complication, which must receive due consideration, but it is not the intention of this paper to dwell on these conditions but rather to present for your consideration the conditions that arise in unmixed syphilis of the internal ear.

Syphilis may affect the inner ear alone, or the eighth nerve alone, or both combined, or it may affect the cochlear portion or the vestibular portion of the nerve alone, thereby giving you tinnitus and deafness in the one and a disturbance of the equilibrium in the other. In a vast majority of cases the nerve is affected before the labyrinth.

In some cases of syphilis of long standing it may be found that the patient is suffering from vertigo, sometimes falling, nystagms, and past pointing while the hearing may be normal or nearly so, in which case we know that only the vestibular portion of the eighth nerve is involved. In these cases, the turning and caloric tests may be negative, but with these symptoms, with other diagnostic aids, we may be able to prove the case.

Fraser has stated that his investigations lead him to believe that many cases of congenital deaf-mutism were due to intrauterine syphilis or to syphilitic changes in the ear occurring before the child learned to talk. Aside from the congenital form, meningitis, mumps, measles, and scarletina, in the orders named, are usually given as the cause of deaf-mutism, but it has been pointed out that many of these cases, that are not congenital, have no explained origin and that about 30 per cent of this class show a plus Wasserman reaction.

Beside the evidence of the Wasserman reaction, there may be noticed in the congenital cases, the Hutchinson teeth, keratitis, or the scars from an old case of keratitis, a child with the old appearance that is so characteristic of syphilis, and the parents in presenting the history of the case will lay great stress on the catarrhal condition of the nose and often of the ears In fact, this history and the otoscopic appearance may mislead the otologist.

We must depend much more upon the knowledge gained from functional tests than from the history given as the victims are usually ashamed to confess a disease that bears a stigma of sin. Especially will this be true if the patient is a child, as they can not furnish a true history, and the parents are inclined to conceal their guilt.

The patient is often driven to consult the physician from the distressing vestibular symptoms, and if there is not great loss of hearing with the vertigo, they may not associate this symptom with the ear.

Upon examining these patients, we may find spontaneous nystagmus with the locomotion uncertain, associated with a spontaneous pointing error which may, from time to time, improve with the tinnitus.

The fibers are incapacitated by pressure when the infiltration of the nerve is great, which makes the symptoms more pronounced, when the pressure is reduced b the absorption of the infiltation the past-pointing and tinnitus may also disappear and the patient seem almost normal, which should not deceive the physician as the treatment should be energetic to prevent the recurrence of these symptoms.

The symptoms caused by syphilis of the inner ear may be unilateral or bilateral, but upon close examination, it may be

found that the hearing is deficient in both ears but more marked in one than the other.

A very careful consideration should be given the Weber, Schwabach, and Rinne tests for the cochlear portion and the turning, coloric and electrical tests with their reactions upon the vestibular portion.

The turning and coloric test each has its advocates, but if either is systematically carried out, will furnish valuable information. The greatest objection to the turning test is that both ears are affected at the same time while coloric test gives you information of only the ear under test. The only real valuable use for the galvanic is that in spite of the inner ear being destroyed, the eighth nerve may respond to its stimulation which is an evidence as to the seat of the lesion.

It is a remarkable fact that in almost 100 per cent of cases with enetic infection, there will be a marked shortening of bone conduction. This may be noted as early as the seventh day after the infection, but Beck has noticed that in those cases that have a well developed skin eruption and other secondary manifestations, the bone shortening is less liable than in those who have had only the primary sore without the secondary symptoms.

George H. Wilcutt says that the bone conduction is due to the toxines in the blood stream. Others believe it to be due to a meningitis caused by an increase in the blood pressure, and have offered as an evidence, the lengthened bone conduction just after a spinal puncture.

With the tuning fork placed on the vertex in some cases there is almost an absence of bone conduction. A shortened bone conduction, unless the patient is beyond fifty years of age, associated with deafness, should be regarded with suspicion.

There may be intermittent places in the perceiving apparatus where the tuning fork may be heard better than at other places but usually there is a marked lowering of upper tone limits so that the high pitched tones are badly heard while the low pitched tones may be heard with ease.

In this form, as in other cases of syphilis, we must search for any other symptom that might assist in the diagnosis. Sometimes the seventh nerve, or the third or sixth nerve may be involved, or there may be pupilary or optic nerve changes, or anaesthesia, hyperesthesia, loss of deep reflexes, etc., may be found.

No investigation is thorough without a complete laboratory report, but we should remember that in spite of a negative Wasserman and spinal fluid, the pathological changes responsible for the loss of hearing, may point to syphilis.

The prognosis in the hereditary form is always grave and the same may be true in the acquired form unless appropriate treatment is instituted at the early stage before injuries to the structures compressed become well advanced. However, there are some who have reported cures after six years of continued treatment. This would seem impossible when we remember that only the specific lesions that are the result of the toxine of syphilis will respond to antisyphilitic treatment, while the cicatrices and bands of contracting cicatrical tissue and adhesions which are the results of luetic inflammation may not be influenced by treatment.

The prognosis is more favorable in those who have had an extensive eruption than in those that have had no secondary symptoms.

Dr. George W. Mackenzie affirms that an active syphilitic lesion of the inner ear or eighth nerve is just as responsive to antiluetic treatment properly selected and early begun as the same type of lesion located in any other part of the body.

I believe that there is a unanimous opinion that in the treatment of syphilis, in any of its various presentations, mercury and iodides should be our sheet-anchor, but we are not agreed as to the methods of administering them. This may be accounted for in the idiosyncrascy of the patient, the size of the doses, the time and frequency of giving them, and the many different phases in which this disease presents itself.

While I shall not attempt to say that any method is preferable to another, I do insist that they must be given and given rapidly, and that iodide of potash, given in heroic doses, often yields a better result, until certain stages are passed, than any other remedy given.

There was a time when to mention the administration of arsphenamine, would arouse a storm of opposition by those who believed that the remedy caused the nerve lesion more often than the disease. Many of you may remember, there are books still extant, which will show that the same battles were fought over the treatment with mercury. I can recall when men broke their arms in some slight way, such

as throwing a ball, it was attributed to the mercury they had taken. We now know that it was the disease and the lack of a remedy to arrest it that produced the fracture.

Judging by the statistics that have been given us upon this hearing, I believe that history has repeated itself and that the neuritis was caused by the disease, which might have been arrested by a more judicious administration of arsphenamine, as the same manifestations have occurred under treatment with mercury.

So far as is yet known, such nerve lesions are not recorded in the giving of arsphenamine in diseases non-syphilitic. Many cures have been recorded where there had been a long and repeated treatment with arsphenamine.

It is not my intention to present to you a long line of dry statistics which have been compiled as evidence which favors the administration of arsphenamine, but I shall call to your attention that this is emergency treatment, and we want a remedy that may produce results almost instantly and when I recall the testimony of one, corroborated by hundreds of others, the marvelous results produced by one dose of arsphenamine, I am afraid not to give it.

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REMOVAL OF INFECTED TONSILS EARLY IN LIFE.*

T. W. STALLINGS, M. D.,
Tulsa, Oklahoma.

The tonsils being a part of the general lymphatic system and reaching the height of their functional development early in life, are subject to early infection. They are conveniently located on each side on the pharyngeal wall where the respiratory tract crosses the digestive tract. Usually the first infection that a child has to overcome is that of the digestive tract while the various infections of the respiratory tract are seen very early in life.

The tonsils are connected with the general lymphatic system and are ductless and take part in all general inflammatory processes affecting the whole blood or lymphatic system.

Since tonsillar infections are seen very early in life and because of the close functional relationship of the gland to the lymph stream, the organism very early acquires an entrance to the general circulation. In the case of the streptococcic infections the organism tends to persist in the gland in a virulent form after the actual inflammatory symptoms have subsided, regenerating rapidly when a period of lowered resistence occurs. Hence, a child whose first tonsil infection is first seen at the early age of a few months to a few years, often will have repeated attacks of tonsilitis for the next years to follow, and the glands are never quite free from the signs of the inflammation.

The physiological activity of these glands is greater in youth and the proliferating processes brought about by the infection cause the first signs of the gland's enlargement, which in some cases continue to the point of mechanical obstruction of the tract, followed by the numerous changes in the face and the chest of the child because, as we think at this time, due to the purely mechanical obstruction offered. That general infection does occur very early has been shown in some cases by blood culture in children, both before and after development of lesions of the mitral valve. The mitral lesions of youth are most often caused by the same strain of streptococcic germs found in the tonsils. Many of the lesions are discovered in a routine examination, the child not complaining of enough throat trouble to attract the atten-

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tion of its parents. Other examples of the early blood infection in children are the associated rheumatism of childhood and osteomyelitis, or the blind abscess formation for which we can find no other entrance of the germ to the blood stream. Many cases of nephritis in children and young adults are found following prolonged absorption from acute or chronic tonsils. It is surprising to see how many of these children show albumen in the urine following even mild types of sore throat. Sometimes the presence of the albumen will persist in the urine after the throat symptoms have subsided and no other cause can be found for the condition, the tonsils are removed followed by a rapid disappearance of the nephritic signs. In the nephritic cases seen in adults of long duration, there is frequently a history of repeated attacks of sore throat occurring year after year. The chronic heart trouble, kidney trouble, and high blood pressure, rheumatic pains and aches are the end results of many years of absorption of the germs and their toxic products.

The point I wish to make clear is that many of the late systemic conditions of middle life and after life are being relieved, or better, can to a large extent be avoided, by removal of infected tonsils early in life. From my own observation it seems to me that the parents who have badly infected throats are likely to transmit the infection to their children by contact when the child is very young, and in these parents whose tonsils have been removed before the birth of their child, the child does not tend to show early infection of the throat unless infected by some individual other than the mother.

In dealing with infected tonsils in children, we must also take into consideration the effect produced on the health and appearance of a growing child by the mechanical obstruction offered to the respiratory organs. Hypertrophy of the adenoid tissue with extensive mechanical obstruction of the nasal pharynx during that period of the child's life when the bones of the face are soft and undergoing development causes definite changes, which persist through life and are extremely detrimental to its health and appearance. Continued mouth breathing causes high arching of the hard palate with shortening of the dental spaces of the upper maxillae, and shortening of the upper lip, exposing the irregular upper teeth. The increased convexity of the hard palate tends to cause a greater deviation of the nasal septum and even after the tonsils are removed, the obstruction may be sufficient to interfere with the normal physiological activity of the tubes in drainage and equalization of air pressure within the middle ears. Because of this impaired function the tube may become infected and allow the infected material to be carried into the middle ear. Most cases of middle ear infection are caused by germs inhabiting the lymphoid tissue in the child's nose and throat, and in that way producing an auto infection.

The mechanical obstruction of the respiratory tract does not facilitate deep breathing and expansion of the chest; hence this child is more inclined to develop deformities of the chest. The resultant poor aeration of the blood causes the chi' to appear frail and inactive and mentally dull.

In conclusion the points which I hope to make clear are that tonsil infection is responsible for many of the general systemic conditions of later life; that the infections are acquired in childhood and early youth and persist for years, or perhaps all of its life, unless operated upon. The fact that he does carry this low grade infection all these years, I believe, causes him to suffer a greater or less amount of damage to his vital organs.

"PROCEEDINGS OF THE OKLAHOMA CITY CLINIC ROUND TABLE"—WESLEY HOSPITAL.

Abscess, Perinephritic—Metastatic.

A. L. BLESH

Case I, Serial No. 8735.

Patient, a woman of 47 with negative family history. The present trouble began three weeks ago with a purulent infection of the right thumb, which after drainage by incision promptly healed. Within a week of the inception of the thumb infection, she was suddenly seized with a sharp pain under the left shoulder blade. This interfered with deep inspiration and was associated with a chill and fever to 103 degrees. The fever has persisted to the present time, two weeks. Within a few days of the chill and inception of the pain, she began coughing up some blood-stained sputum. Respirations were rapid, with retardation and diminution on affected side. There has been a marked soreness over the left lower chest. She has lost strength and weight rapidly.

Physical Examination. A fairly well nourished, quite anemic brunette woman, temperature 100, pulse 96. Lungs are negative to palpation and percussion. No friction rubs. Expansion limited to left. Distinct tenderness with perceptible muscular rigidity over left renal region.

Laboratory. Voided specimen of urine sp. gr. 1016, alkaline. Albumen, large amount, sugar and indican negative. Few pus cells. Blood W. H. B. 8400. R. B. C. 3,160,000 H. B 50%. Renal work out (Dr. Mraz) cystoscope, bladder capacity 300 cc. Bladder picture including ureteral orifices normal. No obstructions to ureteral catheterization. P. S. P. simultaneous 3 m. Fifteen m. quantitative right and left 22%. Left pyelogram normal. No pain on injection of 5½ cc. thorium nitrate.

Diagnosis (Dr. Rucks): Abscess perinephritic left, metastatic

Operation (Dr. Blesh): Location of pus with exploring needle, incision, drainage.

Laboratory examination of smear of pus shows staphylococci in pure culture.

Case II, Serial No. 8736.

A young man of 19 came to the clinic complaining as follows: Three weeks ago, in the midst of good health he suddenly had a mild chill followed by 104 degrees temperature, right lumbar and chest pain and severe frontal headache. After five days in bed he went to work, although he ran a temperature of 100 to 102 continuously and felt badly. There has been constant soreness and pain over right renal region. No urinary disturbance.

Physical Examination. A well nourished muscular young man, clinically negative, except for temperature of 100 and pulse of 120.

Appearance. Physically ill.

Marked tenderness of right renal region along course of ureter to region of appendix. Lumbar muscle rigidity on right side.

Diagnosis—Abscess, Perinephritic, metastatic.

It was only by careful cross-questioning that the primary source of the infection was found in a (at this time) healed furuncle of the face, which had existed during the week before the appearance of the chill and pain over right renal region.

Operation (Dr. Stout): Incision and drainage of several ounces of thick staphylococcus pus, from the region of the upper pole of kidney. Blood count in this case 10,250, urinalysis negative.

Remarks: Within the last year we have had several cases of this kind, the histories of which were precisely similar, one of which we sent home undiagnosed to return later with a large bulging abscess which had diagnosed and almost operated itself. In another, we made the diagnosis, but in operation failed to find the pus. Fortunately it soon found its own way to the drainage tract and emptied tiself within a few days.

At first we had the renal tract worked out as a precautionary diagnostic measure, but now we have become so confident in the clinical syndrone and physical findings, that we do not hesitate to make the diagnosis clinically.

The ordinary germs of pus infection give a characteristic metastatic history. Invariably the onset is sudden and occurs with a short prodromal period. There is always pain and soreness about the region of the metastasis and fever.

The metastases from the chronic infections (tuberculosis, cancer, etc.) never declare themselves frankly. Neither patient or physician can exactly fix the time when the patient became sick.

The sources of the primary infection may be hematogenous as in these cases or by direct extension from an infected kidney with or without calculi. In the latter case there is always a more or less long preceding renal history. In the class of cases just described, there is no antecedent urinary story. Direct extension from the kidney almost perceptibly blends the clinical history of a long standing renal trouble with that of a peri-renal inflammatory lesion. Peri-renal abscess by direct extension is usually associated with infected renal stones of pronged pelvic variety which has domiciled and grown and become infected in the kidney pelvis, by extension through the renal collecting apparatus into the filtering zone. Infection occurs directly through the urinary tract or indirectly through the blood stream. In either case, the peri-renal abscess is merely an extension directly communicating with the kidney. In the one case as a rule the kidney is ruined, in the other it is not at all harmed.

CARCINOMA IN RIGHT NOSTRIL, INVOLVING ANTRUM.

(FURTHER REPORT)

J. C. MACDONALD

I wish tonight to make a further report on a case reported in December, 1921. At

that time his right nostril was completely obstructed with a carcinomatous growth. We used repeated applications of radium needles unscreened, direct in the tumor mass, also properly screened over right antrum. This growth had entirely sloughed in six months, the patient gaining in strength and his weight is now 186 pounds, about four pounds above his usual weight. He suffered severe pain over right eye for a time, but this has almost ceased. While the cancer in all probability is not cured, there has been no evidence of recurrence in past six months.

The right eye ball, which had shown bulging for almost eight months, has now receded back to normal. The patient is in a better physical condition other than the diseased area than he has been for several years. While he is still suffering with some pains over the diseased area, the nostril is quite open now and he breathes freely through the affected nostril.

The prognosis in this case is bad, of course, but had he not received the large radium doses with unscreened needles, I believe he would not be in the good condition he is now in.

CASE OF PRIMARY CARCINOMA OF GALL BLADDER—METASTASIS IN POUCH OF DOUGLAS AND IN MESENTRIC GLANDS—GALL STONES.

D. D. PAULUS.

Case No.

Male, age 66. Stockman by occupation.

Family history: No. T. B. or malignancy.

Previous history entirely negative. Always been a well man up to present trouble.

Present complaint began six months ago with increased peristaltic pains which were located mainly in center of abdomen about the umbilicus. Patient has constant desire to relieve pain by going to stool, without results, so far as relief is concerned. Cathartics were taken without relief. No blood, pus, or mucous in stool. Family physician states that constipation has steadily increased so that now it is very hard to get bowel action by cathartics.

Pain is more or less constant, with acute exacerbations. No relation to meals. Often keeps patient awake at night. Walks around room at night to relieve pain. Pain often radiates through to back, but not especially to right shoulder. Has exacerbations of pains which do not seem to be initiated by food intake or other conditions, but often produce nausea. No urinary disturbance. Thinks he has lost considerable weight, but knows he is steadily losing in strength. Appetite is steadily declining.

Physical Examination. Fairly well nourished male. No evidence of cachexia. Temperature 98. Pulse 100. Blood pressure 174/100. Pupillary reaction negative. Teeth worn. Throat negative. Glandular system negative. Chest—the art tones muffled. No murmurs. Occasional extra systole. Increased tension of pulse. Liver and spleen not palpable. Marked voluntary resistance of abdomen, especially right side. Tenderness of same side. No tympanities. Otherwise examination negative.

Laboratory. Urine negative. W. B. C. 7,800. Reds 3,800,000. Hb. 95%. Feces—no parasites ova, no blood or pus. X-Ray, stomach negative. Duodenal cap normal. Tenderness outside of stomach over G. B. region. Marked colonic stasis. Seventy-two hours with spastic sigmoid-rectal flexure.

Operation. Right rectus incision—appendectomy, cholecystectomy.

Operative Findings. Appendix retrocecal—white cord-like obliterated lumen. Gall bladder contained two large stones, dome smooth—base thick, hard, indurated. Mesenteric glands enlarged, especially lower part of abdomen. Cecum anchored rather high. Hard mass in pouch of Douglas attached to peritoneum—size of base ball.

Pathologic Findings. Gall bladder wall at base thick, mucosa irregular. Two large stones. Base very hard, indurated section shows adeno-carcinoma, mesenteric gland adeno-carcinoma, section of mass adeno-carcinoma.

The interesting condition in this case is the small lesion of the primary cancer of the gall bladder as compared with the extensive secondary metastatic involvement. What must happen in these cases is that the carcinoma cells form the primary lesion, in this case the gall bladder itself, fell down into the pelvis and became engrafted on the peritoneum, producing this cauliflower-like growth in the pouch of Douglas as with secondary mesenteric gland involvement. A similar condition in rare instances is found in carcinoma of the stomach where the carcinoma cells drop down into the pelvis pouch of Douglas—and produce a secondary lesion. The route

of metastases of cancer in these cases forms a strange contrast to the ordinary lymphatic metastases and the far less frequent metastases by the blood stream.

Whenever on opening an abdomen the operator finds an inexplainable metastatic carcinomatous mass in the lower part of the pelvis—pouch of Douglas, he should always look to the upper part of the abdomen for the primary lesion. A well experienced surgeon and one familiar with the literature on this subject, will never fail to do this.

REPORT OF A CASE OF REFERRED PAIN.

DR. WM. H. BAILEY

Miss D. D. Case No. —. Came to the laboratory to find cause of a persistent and severe aching of the teeth and jaw of the lower left side which had lasted over two months.

Previous History. Patient a slender but well nourished young adult. Has had only a few of the diseases of childhood. Always well and strong as a child. Has never had any severe illness as typhoid, scarlet fever, or pneumonia. Always feels well, but never very fleshy or robust. Not troubled with especially frequent attacks of tonsilitis, although she has had a few. Four or five years ago she had an attack of neuritis of the jaw, somewhat like this attack, but she doesn't remember whether it followed an acute cold, or if it affected the same side as this attack.

Family History. Nothing of importance as related to this case.

Present Illness. About two months ago the patient caught cold while swimming at one of the outing resort lakes. Within a day or two she began to have neuralgic pains in her left lower jaw. At times the pain radiates to the upper jaw of the same side and to the left ear. Occasionally there is a sense of soreness to the skin over the whole left side of the face which always stops abruptly at the meridian line. Pain never extends over to the right side either of the jaw or face. At the present time it is painful to the patient to bite on the lower teeth of the left side. Pain is more noticeable at night, but is never of a throbbing nature. No increase in pain caused by either hot or cold foods. Aspirin will almost entirely relieve the pain for a few hours but it invariably returns.

Physical Examination. On account of the definite localization of the trouble only a partial physical examination was made. Teeth were found in good condition with a few well filled cavities. None were tender on pressure, but the second lower bicuspid and the first lower molar on the left side were extremely sensitive on tapping. Gums and mucous membrane of the mouth of normal appearance. Tonsils were slightly enlarged, but not especially abnormal in appearance. The sublingual and sub-maxillary glands on the left side were just palpable. Examination of ears did not show any discharge nor abnormal condition of the drum. Nasal examination was negative for spurs, deflected septum, foreign bodies, or new growth. No evidence of infection of any of the sinuses could be discovered. X-Ray films of the most sensitive teeth in the lower jaw did not reveal any abnormal condition in them.

Patient was referred to a dentist for a complete and thorough dental examination which revealed an unrupted and impacted upper left third molar. This was removed and all the pain and tenderness in the lower jaw ceased as if by magic and has not returned.

The subject of referred pain is most interesting and often the primary lesion causing such pain is most difficult of discovery. Like will-of-the-wisp referred pain from a certain lesion may appear here and there with often very few signs that will point to the real cause of the trouble. Time must be taken to work out these cases carefully so as not to remove possible causes and allow the primary lesion to remain uncorrected and be embarrassed later to have to admit ourselves that the first line of treatment was not only incorrect but that normal structures had been mutilated and possibly destroyed.

ST. ANTHONY'S HOSPITAL CLINICAL SOCIETY, OKLAHOMA CITY.

REPORT FOR OCTOBER, 1922.

UN-UNITED FRACTURES.

DR. CURT VON WEDEL.

The subject of un-united fractures is one thing that is interesting the profession greatly today, especially with the ever-increasing numbers due to the severe industrial injuries. We must very definitely define Mal-union, Delayed-union, and Non-union. Something occurs to prevent a normal osteogenesis. Just what this something is, is not thoroughly understood.

The treatment, however, is autogenous bone graft.

In general, there are three major methods of bone grafting: 1. Osteo-periosteal. 2. Intra-medullary. 3. Whole thickness of large graft, consisting of periasteum cortex, endiosteum, and medulla.

The American school today is largely using the third or whole-thickness graft. First, because with it we have layer to layer apposition. Second, we can obtain firm fixation in any desired angle, thereby enabling us to secure normal alignment. Third, every member of the osteogenetic cell area is used. There have been many arguments as to the value of periosteum in bone regeneration, likewise, there are many arguments as to the viability of the graft. I believe, however, that it has been shown beyond a question of doubt by Haas, and Barney Brooks of St. Louis, that a large sized graft carefully cut and not infected, not only lives, but has regenerative power within itself.

The French School has shown some brilliant results in the osteo-periosteal method, however, as most of their work has been done with delayed union, or with loss of bony substance, and not with true malunion, a comparison is unfair. Needless to say, that if an osteo-periosteal graft will live, surely a whole thickness graft will live.

There are three cardinal principals in bone grafting: 1. A large strong graft. 2. Firm fixation of the graft. 3. Firm external fixation.

I am this evening presenting four cases: 1. Non-union in the anatomical neck of femur of nineteen months duration. 2. An un-united patella with one inch separation of fragments, of five months duration. 3. A pure case of non-union of the tibia of eighteen months duration and 4, a case of delayed union and mal-union of the tibia of three months duration.

CASE 1. A large vigorous man of thirty years of age sustained a fracture of the anatomical neck of the right femur about nineteen months ago. This was treated by simple traction in bed. No attempt was made to fix this in abduction. Had this case been properly put up in a Whitman's abduction cast no trouble would have resulted.

A tibial dowel peg was inserted through the trochanter into the head, according to the method of Albee. Recovery was uneventful. Today, about one year later, this man shows evidence of a good deal of his graft being absorbed, but with considerable union present. I believe the next case I have of this type I will use a whole thickness of the shaft of the fibula.

CASE II. A normal, healthy man of about forty years of age having sustained a fracture of the right patella some six months ago, was treated with adhesive plaster. At present fragments are one and one-half inches apart. Longitudinal incision was made. The cartilaginous end of the patella chiseled off. The joint cleaned out. The severed ends of the lateral ligaments were firmly sutured, and a deep kangaroo tendon mattress suture was placed at the lateral ends of the patella. A double triangular area was cut from the patella and a graft was made from the tibia containing all the layers of bone. This was made to fit exactly and was driven in with force. The anterior ligaments were then sewed up, holding the graft firmly in place.

Today, twelve weeks from date of operation, the man has solid union in his patella and sixty-five per cent normal range of motion. With massage it is gradually returning to normal.

CASE III. A young man who sustained a fracture of both bones of the leg eighteen months ago. Operated on several times unsuccessfully with the attempt to secure union. He came to us with no union whatsoever. The medullary cavity was completely obliterated with massive interposition of fibrous tissue. Under ether anaesthetic the end of the bones were thoroughly freed of fibrous tissue and a large graft was cut containing all layers of bone. This was firmly fixed in position and the leg put up in plaster. Today, two months from date of operation, he has apparently good union. However, we are not allowing this man to walk for some two months more as we wish to make certain of solid union.

CASE IV. A young man who some four months previous to his coming to us, sustained a fracture of both bones of the right leg. Apposition was bad. Union was soft, allowing a good deal of lateral motion. Under spinal anaesthetics the old fracture was broken up. Bones were put in good alignment and a large sliding graft secured firmly in place.

Today, two months later, the boy has solid union and is getting around on his foot, with crutches.

MEGA COLON OR HIRSCHPRUNG'S DISEASE.

DR. A. A. WILL.

Reported cases and scattered reports of cases are found in literature since 1825, but it remained for Hirschprung in 1886 to report and describe several cases and give the symptoms. The etiology of mega-colon, Hirschprung described as a congenital idiopathic dilitation of the colon.

Several theories have been advanced since that date as to the etiology. Among these theories may be mentioned nervous origin, colitis and malformation due to defects of the cord. The concensus of opinion now, is that the true mega colon is a congenital defect beginning probably in the early embryology of the fetus. The majorities of the true mega colon involve the entire colon and at least a portion of the rectum. The colon being greatly distended and following the distention a marked thickening appears throughout the wall of the colon and the mega colon.

Diagnosis: Abdomen is usually distended. No pain or tenderness over the region of the colon. No peristalsis can be made out. The child does not gain in weight and is apparently suffering from absorption of toxemia. Emaciation continues in spite of large amounts of food that are given. With the colon tube or proctoscope passed into the pelvic colon, you will be able to drain off large amounts of liquid feces. With these cardinal symptoms and the use of the X-Ray the diagnosis is usually easy.

Treatment Advised: Regulation of the diet, colon irrigations and the use of atropine and strychnine in physiological doses. Surgical treatment, *i. e.*, resection of the colon after diagnosis is once established. Prognosis: Few recoveries.

CASE REPORT.

Stanley D., age one year, comes to us with a history of obstipation since birth. Weight about ten pounds. Skin dry, face drawn and peeked. Abdomen distended from ensiform to pubes. No peristalsis visible anywhere in the abdomen. Palpation shows doughy mass found over entire colon; otherwise the abdomen appeared negative. Rectal examination, digital,—Sphincter, normal, rectal pouch enlarged. Walls not in contact. With the use of the proctoscope passed into the pelvic colon a large amount of liquid feces were withdrawn on several occasions. Temperature and pulse normal. Diagnosis of stricture of the colon with colitis had been made on several occasions.

Dr. W. M. Taylor, who first saw the child, had made a diagnosis of possible stricture of the colon and was inclined to believe that it was a true mega colon or Hirschprung's Disease. With the use of the proctoscope and X-Ray the diagnosis was easily confirmed.

Plan of Treatment: First a colostomy as near to the cecum as possible, which was done on July 18, of this year. Child returned to his home and was advised to return some time in the future. Child gained one and one-half pounds per week from time of discharge until he returned to hospital October 10, 1922.

On above date, at second operation, it was planned to do a resection of the colon. The child was given ether anaesthesia and the abdomen opened. Child showed a marked degree of shock and it was decided to do a simple anastomosis. Anastomosis between the ileum and pelvic colon, leaving the previous colostomy wound open. Child returned to bed in good condition. Post-operative condition good. On the morning of the third day post-operative, the child collapsed and died at 11 A. M.

Cause of Death: Surgical shock. Acidosis.

No post-mortem obtained.

CAROTINOID PIGMENTATION OF SKIN RESULTING FROM VEGETARIAN DIET.

Hirotoshi Hashimoto, Sapporo, Japan (Journal A. M. A., April 15, 1922), has observed more than thirty-five patients showing a yellow discoloration of the skin after eating unusual amounts of yellow squash. This pigmentation is the same as that caused by the liberal use of carrots in the diet. The color varied from a canary yellow to a deep orange gold. The palms of the hands, the soles of the feet, the forearms, and the naso-labial folds were tinted more heavily yellow than other parts of the body, whereas the sclerae were not affected. There is no itching of the skin, general malaise, fever, etc. When squash is removed from the daily diet, the yellow pigmentation of the skin disappears slowly. It is of interest here to note that the palate resumes its normal color most slowly, the yellow discoloration being observed here even several weeks after the disappearance of the pigmentation of the palms of the hands or the soles of the feet. Squashes (Cucurbita maxima), as usually eaten by the people in Hokkaido, contain a large quantity of harotinoids. These are probably absorbed easily from the small intestine. Hashimoto was able to demonstrate in vitro that these pigments dissolve readily in human duodenal fluid kept at the temperature of 37 C., though not in the least in gastric juice. The pigments thus absorbed from the intestine circulate in the blood. In some cases of mikan or squash pigmentation the presence of carotin in the blood drawn by venipuncture was determined.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive the Journal should call for immediate notification of the editor, 508 Barnes Building, Muskogee, Okla.

Local news of possible interest to the medical profession, notes on removals, changes in address, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

EDITORIAL

MORE FOOD FOR THE GULLIBLE.—ABRAMS "ELECTRIONICS."

The latest Mahommet to upset the medico-scientific world is with us, and, like his predecessors regardless of the date of appearance upon the stage of time, his methods proclaim the man and almost surely the inevitable end of another fiasco. The "Electrionic" Theory or to be brief the "Electrionics" of Dr. Albert Abrams, San Francisco, have all the ear marks of many things that have passed with time, as weighed and found wanting. Like others of the type too, they are strangely attractive to the credulous and unscientific, while an audience composed of finely equipped medical mentality in the skeptical City of Boston couldn't see the point in a specially staged demonstration at all, according to the Journal, A. M. A. The article dealing with that phase, however, noted that the "claquers" in the rear of the hall, supporters of the new revolution, were loudly enthusiastic of the demonstration. They were more receptive than their skeptical fellow observers seated on the front benches.

The system seems to depend for its marvelous power upon the reaction obtained from an electrical hodge-podge, the vital part of which is secret and which part the lessee (the apparatus is not for sale) is prohibited by his signed contract from unsealing, entering or investigating in any manner. Just why it is too sacred for the prying eyes of a curious profession is not known, though strongly suspected by many incredulous observers. In Oklahoma it has found some champions of variegated type, Eclectics, ex-Ministers, Osteopaths and others have acquired the "power" by purchase to make diagnoses in a hitherto unheard of manner. It is said the author of all the excitement maintains against all comers that syphilis is practically universal, and that it may be demonstrated by use of the apparatus in question. When a Wassermann is ineffective————

The Boston Medical and Surgical Journal (October 19) has this to say explanatory of the matter:

"Opportunity had been given a representative of the practitioners of the Electrionic method to inspect the room and to arrange for proper wiring, but when the meeting was called to order, Dr. Abrams said it was impossible to give a demonstration then. Instead, he and his followers started to hold an "experience meeting," in which they might testify to the efficiency of the method. Dr. Prior, chairman of the Board, acting with dignity and firmness, refused to listen to such a recital. The meeting was adjourned. The next day—Tuesday, October 10—pursuant to an invitation extended by him, Dr. Abrams gave a clinical demonstration of his method in the laboratory of one of his disciples. He first attempted to demonstrate simple phenomena based upon his theory of Electrionic Reactions. It was a remarkable coincidence that the reactions were clearly visible or audible to those followers of his who were in the rear of the room, but were quite imperceptible to those members of the Massachusetts Medical Society who were there to look into the method and who occupied chairs close to the demonstration. Dr. Abrams consistently refused to submit his method to any test offered by those

present, and confined himself to demonstrating the presence of lesions, the existence of most of which could be proved only by post-mortem examination. He selected for his experiment a member of the Journal staff, a man in apparently perfect health. Yet this individual, according to Abrams, presented the following pathological conditions: Streptococcus infection of the left frontal sinus and of the right antrum; two ohms of tuberculosis, location, intestinal tract; congenital syphilis; sarcoma, nonmetastatic, of the intestine. In demonstrating the situation of the sarcoma, Abrams located it first in the right lower quadrant and later, by another method, in the left lower quadrant.

"Analysis of the results of Dr. Abrams' statements and demonstrations while in Boston shows two outstanding facts. First, he persistently refused to submit his method to a scientifically controlled test, or to a demonstration given under such conditions that the investigation of the method could be carried on under the usual rules of scientific criticism. Second, in the one case upon which he did demonstrate his method, he found the existence of four diseases—syphilis, tuberculosis, carcoma, and streptococcus infection—in an individual entirely free from symptoms of any disease whatsoever. If, by his method, he could diagnose disease where no symptoms existed, he surely should have been able to approach without fear of failure a test based upon the diagnosis of blood specimens from a patient with well-marked clinical pathology. The fact that he refused to perform such a test is capable of only one interpretation—that is, that he knew full well his inability to make a really correct diagnosis."

Paternity of the child when questioned may also be promptly settled or rather fastened upon the proud parent. There seems to be no end to the possibilities of the affair, if, the claims of the promoters are to be accepted. One alluring feature of the wonder is said to be its financial aspect. One to two thousand dollars a week is the income ordinarily to be expected from its use—that is—assuming there is that much money in the community and it is in pliable, yielding, credulous hands.

Editorial Notes—Personal and General

Dr. Thos. W. Dowdy, Ardmore, recently moved to Wilson.

Dr. G. A. Kilpatrick, Wilburton, has moved to Henryetta.

Dr. B. Cheston Goldberg, Frederick, has moved to Oklahoma City.

Dr. and Mrs. W. L. Kendall, Enid, visited Chicago in November.

Dr. I. V. Hardy, Medford, visited the Rochester Clinics in September.

Drs. S. N. Mayberry and **J. R. Swank,** Enid, visited the Rochester Clinics in October.

Dr. and Mrs. E. E. Rice, Shawnee, attended the New Orleans meeting, American Legion, in October.

Dr. C. P. Mitchell, Lindsay, is in Chicago where he is doing special work in eye, ear, nose and throat.

Dr. J. C. Baker, Oklahoma City, has moved his office to Kosse, Texas, where he will continue to practice.

Dr. F. M. Sanger, Oklahoma City, is doing special work in urology at Washington University, St. Louis.

Dr. W. P. Lipscomb, Oklahoma City, has quit practice and removed to Denver, Colorado, where he will reside in the future.

Dr. Claude Thompson, Muskogee, attended the annual meeting of state secretaries and editors, Chicago, November 17th and 18th.

Sapulpa has gone to the courts in an effort to collect damages for and prevent future pollution of its watershed by drainage from oil wells.

Dr. C. V. Rice, Muskogee, addressed the Oklahoma State Nurses Convention at Muskogee in October. His subject was on infant feeding.

Dr. and Mrs. C. P. Hues, Lawton, attended the Detroit meeting, Grand Lodge, I. O. O. F., of which order Dr. Hues is past grand representative.

McIntosh County Medical Society met in Eufaula, Tuesday, October 17th. Subject, "Typhoid Fever." General discussion opened by Dr. J. C. Watkins.

Dr. A. G. Cowles, Ardmore, attended the Boston Meeting, American Congress of Surgeons, after which he visited clinics in New York and Cleveland.

Dr. T. B. Hinson, Enid, "went to the mat" with Garfield County Commissioners when they refused to pay for county charges he had given professional and hospital care. He will try the efficacy of the courts in the matter.

Dr. Walter Hardy, Ardmore, has ordered and will have installed in the Hardy Sanitarium a new broadcasting instrument which will allow him to give and receive radio messages. He expects to have the same installed so that election returns can be handled.

Dr. A. H. Stewart, Lawton, addressed the American Legion Post of that city recently, calling attention to the prevalence and prevention of industrial accidents.

Dr. and Mrs. P. F. Herod, El Reno, have returned from an extended trip to Cuba and the New Orleans American Legion meeting. Dr. Herod was a delegate to the latter.

The Sulphur Veterans Bureau Tuberculosis Hospital has been directed to prepare for the reception of all Oklahoma ex-service men now in hospitals in other states. It is optional with the men as to their removal.

Dr. Fred S. Watson, Okmulgee, was married Wednesday, October 4th, to Miss Gelene Nichols of Ozark, Arkansas. The Rev. John T. Donnell, of Ozark, Ark., officiated. Dr. and Mrs. Watson left immediately for the Grand Canyon and other points in the west. They will be at home in the Beauclaire apartments in Okmulgee after October 20th.

Woodward County Medical Society met at Woodward October 27th, as guests of the Woodward Clinic. Clinics were held during the morning, a luncheon tendered thirty-five guests at noon, after which an address of welcome was given by Hon. J. L. Pope, of the Chamber of Commerce. A number of out-of-town physicians and their wives were present.

Tulsa County Medical Society met in the Municipal Auditorium, Tulsa, October 9, 1922, at 8 P. M. Dr. Atchley reported the meeting of the Superintendent of Schools, the City Superintendent of Health, the School Nurses and the committee for the consideration of matters of mutual interest. Dr. Murdock reported two very instructive cases. Other interesting cases were presented by Drs. Ralph Smith, D. O. Smith and Pigford. Attendance 32.

TULSA HAPPENINGS.

Were you ever in Marlin, Texas, a health resort? A few years ago when one went down the main drag of that town you could hear nothing for the popping of the static machines. It looks like the same thing will soon be on here in Tulsa; the Abram's "Iconoclasts" are appearing in increasing numbers; two are in the hands of Osteopaths and one is being advertised by members of the Tulsa County Medical Society.

The opening of the Atlas Life Insurance Co. building has made many changes in physicians offices possible as the second floor of that building has been allotted to Doctors and Dentists. Among those who have moved into it are E. B. Wilson, Billington, Johnson, Henry Browne, Hickey, Harry Greene. Drs. Furrows, Benson and Buxton all dentists, also moved to the Atlas Life.

The moving of the Atlas Life Insurance from the Palace Building gave rooms to Drs. Butler, Peden and Atchley.

The regular meeting of the Tulsa County Medical Society on Nov. 13th was well attended. Dr. Cook's paper on the Care of the Eyes of the New-Born, was the most freely discussed of any paper in some time.

A number of physicians have recently located in Tulsa and are affiliating themselves with the Society. It looks as though there will soon be as large a membership as we once had; before several dropped out because they did not belong.

Dr. J. Winter Brown, who was operated on by Dr. Harvey Cushing in June, continues to improve and is able to get out to attend meetings of the Society but is not able to resume practice.

DOCTOR ISHAM CORNELIUS TALLEY.

Dr. I. C. Talley, Red Oak, died suddenly September 27th while in attendance upon an obstetrical case. Death is said to have been due to heart failure, from which he had suffered for some time.

Dr. Talley was born at Pineville, Ark., August 4, 1862, attended the common schools and University of Arkansas, graduating in medicine at the University of Louisville in 1892. He has practiced for 24 years at Red Oak and was universally respected by those who knew him. Besides his wife he is survived by three sons and three daughters, all of whom reside in Latimer County. Funeral services were held at the Wilburton Methodist Church and interment was made at the City Cemetery.

NEW BOOKS

THE TREATMENT OF FRACTURES
The New (9th) Edition, Revised.

The Treatment of Fractures: With Notes Upon a Few Common Dislocations. By Charles L. Scudder, M. D., Assistant Professor of Surgery at the Harvard Medical School. Ninth Edition, Revised. Octavo volume of 749 pages, with 1252 illustrations. .Philadelphia and London: W. B. Saunders Company, 1922. Buckram, $8.50.

PIRQUET'S SYSTEM OF NUTRITION

An Outline of the Pirquet System of Nutrition. By Dr. Clemens Pirquet, Professor of Pediatrics at the University of Vienna, Austria. 16 mo of 96 pages. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, $2.00 net.

BRONCHOSCOPY AND ESOPHAGOSCOPY

Bronchoscopy and Esophagoscopy. By Chevalier Jackson, M. D., Professor of Laryngology, Jefferson Medical College, Professor of Bronchoscopy and Esophagoscopy, Graduate School of Medicine, University of Pennsylvania. Octavo of 346 pages with 114 illustrations and 4 color plates. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, $5.50 net.

THE THYROID GLAND

Clinics of George W. Crile, M. D., and Associates at the Cleveland Clinic, Ohio. The Thyroid Gland. Octavo of 228 pages, with 106 illustrations. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, $5.00 net.

THE MEDICAL CLINICS OF NORTH AMERICA
(The St. Louis Number)

The Medical Clinics of North America (issued Serially, one number every other month). Vol. VI. Number 1, July, 1922. By St. Louis Internists. Octavo of 203 pages and 61 illustrations. Per clinic year (July, 1922, to May, 1923). Paper, $12.00; Cloth, $16.00, net. Philadelphia and London: W. B. Saunders Company.

AN ESSAY ON PHYSIOLOGY OF MIND

An Essay on the Physiology of Mind. By Francis X. Dercum, M. D., Ph. D., Professor of Nervous and Mental Diseases in the Jefferson Medical College, Philadelphia, 12 mo of 150 pages. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, $1.75 net.

CLINICAL MEDICINE

Clinical Medicine, Tuesday Clinics at the Johns Hopkins Hospital. By Lewellys F. Barker, M. D., L. L. D., Professor of Medicine, Emeritus, Johns Hopkins University; Visiting Physician to Johns Hopkins Hospital, Baltimore, Md. Octavo of 617 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, $7.00 net.

OPHTHALMOSCOPY, RETINOSCOPY AND REFRACTION

By W. A. Fisher, M. D., F. A. C. S., Chicago, Ill., 31 North State Street, publisher. Professor Ophthalmology, Chicago Eye, Ear, Nose and Throat College; late Professor Clinical Ophthalmology, University of Illinois; Surgeon Charitable Eye and Ear Infirmary; ex-President Chicago Ophthalmological Society, etc. Cloth, 248 illustrations, 48 colored plates. Price, $4.00.

This little volume gives a complete and very comprehensive outline for examination of the eye in all its phases, making each step very clear, therefore it is a valuable addition to the library of either students or practicians.

PRACTICAL INFANT FEEDING

Practical Infant Feeding. By Lewis Webb Hill, M. D., Junior Assistant Physician to the Childrens' Hospital, Boston; Assistant in Pediatrics, Harvard Medical School. Octavo of 483 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1922. Cloth $5.00 net.

IMPORTANT ANNOUNCEMENT.

The medical profession everywhere will be interested in the announcement that the Abbott Laboratories of Chicago have purchased the Dermatological Research Laboratories of Philadelphia. This is an advance step for the Abbott Laboratories and will give them deserved recognition among the leading manufacturers of medicinal products.

It will be remembered that the Dermatological Research Laboratories were the first in the United States to produce Arsphenamine during the war when there was such a scarcity of this article; and these Laboratories became well known to the medical profession for their patriotic attitude in developing and manufacturing medicinal preparations in this country. By this purchase of the "DRI" products, the Abbott Laboratories inherited their prestige.

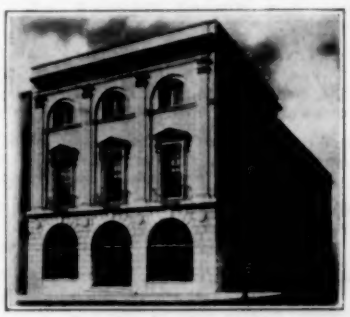
The Abbott Laboratories acquired control of the Dermatological Research Laboratories on November 1st; and are continuing to operate them in Philadelphia under the direction of Dr. Geo. W. Raiziss, head of the department of Chemistry, and his corps of specially trained assistants. Orders for "DRI" products will be promptly filled from the Philadelphia Laboratories or from the home office of the Abbott Laboratories, Chicago, or by any of their branches or distributors. For further particulars regarding their purchase of the Dematological Research Laboratories, the readers of this Journal are referred to the statement of the Abbott Laboratories on another page of this issue, entitled, "Important Announcement to the Medical Profession."

ERYTHEMA BULLOSUM.

Erythema bullosum is a rare type of erythema multiforme in which the exudation is so rapid and extreme as to cause bullae in addition to the edema which occurs in some of the more common forms. J. S. Eisenstaedt, Chicago (Journal A. M. A., May 6, 1922), has studied five patients suffering from a severe form of erythema bullosum, three of whom were desperately ill. These cases seem to indicate that erythema bullosum is a disease due to toxic substances. The toxic substances may be from widely different sources. In attempting to find an etiologic factor in different cases, it is well to rule out focal infections from the teeth, tonsils, etc. Any focal infection present should receive expert attention after the subsidence of the attack. Treatment directed to alkalizing the patient to the utmost and giving large doses of salicylates is of great value. Protoclysis for the exhibition of alkali salts and salicylates is indicated when the patient cannot take fluids by mouth. Regardless of how desperate the condition may appear, recovery usually takes place under appropriate treatment.

THE NEW HOME OF HYNSON, WESTCOTT & DUNNING OF BALTIMORE.

This national drug firm has just erected and ocupied its own building at Charles and Chase Streets, Baltimore. The building is artistic in appearance and adapted to accommodate the several departments of their rapidly developing business which began in a small way in 1889, but has grown to a million a year, with an organiza-



tion of 125 people. Their unique sales department alone comprises 19 men who visit physicians in all parts of the United States but do not sell goods. Thirty-five of their products have been accepted by the Council, and are advertised in this Journal. None of their preparations are offered direct to the public but are introduced to the medical profession for the use of physicians and their patients. Mr. H. P. Hynson, one of the founders, died in 1921; but their growing business has now been established in new quarters under the immediate supervision of Messrs. James W. Westcott and H. A. B. Dunning (the latter being the active administrator) with a highly trained force, equipped to meet promptly the demands of the medical profession anywhere and at all times.

STANDING COMMITTEES.*

Medical Defense—Drs. L. S. Willour, Chairman, McAlester; J. H. White, P. P. Nesbitt, C. A. Thompson, Muskogee; McLain Rogers, Clinton.

Legislative—Drs. A. K. West, Majestic Bldg., Oklahoma City; J. M. Byrum, Shawnee; G. A. Boyle, Enid; C. A. Thompson, Muskogee.

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TUBERCULOUS INFECTION IN CHILDREN

RAY M. BALYEAT, A. M., M. D.
Oklahoma City, Okla.

During the past much has been written concerning pulmonary tuberculosis, but little has been said about pulmonary tuberculous infection in children. Most that has been written on this subject has dealt with pulmonary tuberculosis in adults, as pulmonary tuberculosis in children is comparatively rare. Tuberculous infection in children is quite common, but little has been written about it. It is especially this phase of the tuberculous problem I wish to discuss. Today the phthisiologists are few who do not believe that clinical tuberculosis in adult life, in civilized countries is, with rare exceptions, a recrudescence of the infection acquired in childhood. Clinical pathology and neocroscopy findings have proved that a tuberculosis infection or active tuberculosis is present in from 85 to 95 per cent of all children under 16 years of age. It is believed by many that any child who has been closely associated with a person having open tuberculosis is potentially tuberculous, the disease manifesting itself later in childhood or in adult life.

Since it is generally believed that, with rare exceptions, clinical tuberculosis of adult life is only an awakening of a tuberculous infection contracted in childhood, then how important it must be to know something about the extent of the childhood infection so that one's environment may be changed, if need be, to protect the child from the consequence of the infection. The individual should be treated as soon as the presence of the infection in childhood can be determined, and all possible means should be used to increase resistance at an early age by improving home conditions and personal and school hygiene. The treatment is chiefly teaching such children how to live. It is important that these children be impressed with the fact that they have a tuberculous infection, and taught, not only about right living, but also concerning the signs and symptoms of an early active tuberculosis so they will present themselves for examination and management while the infection is in the incipient stage.

It is interesting to note how, under proper guidance, the activity of many cases of moderately advanced pulmonary tuberculosis will become arrested, but it frequently takes months or years to obtain such results. It is also interesting to observe how much shorter period it usually requires, and how much **surer** one feels that the arrested condition may become permanent if the patient is placed under management early in the disease. One who examines many chests frequently sees a patient with advanced pulmonary tuberculosis whose history and chest findings indicate that the present activity has extended over a period of years, yet the patient is just awakening to the cause of his trouble. In all probability, if such patients had been examined in childhood, evidence of a massive tuberculous infection would have been found. It is also reasonable to believe that if they had been told then of the degree of their infection and the possibilities of the inactive process becoming active, and had been instructed in the signs and symptoms of early activity, they would have presented themselves at such a time that the disease would have been amenable to treatment.

In determining the possibilities of a child's having active tuberculosis later in life, many factors must be considered. The influence of the constitutional factor has been pointed out by Pearl. In taking the histories of several children in the same family who have lived under practically the same environment, it is interesting to note that they often vary widely in the resistance they offer toward diseases in general. Again, the resistance offered by children of one family to diseases, compared with the resistance offered by the children of

another family who are living under practically the same environment is quite different. With such observations it seems reasonable to believe that the inherited constitution of the individual plays a part in determining whether or not a child who is infected with the tubercle bacillus will develop active tuberculosis in childhood or adult life. The influence of environment in the cause of clinical tuberculosis has been pointed out by many writers and recently discussed in detail by Krause. In the first place, environment determines whether or not a child will receive a tuberculous infection, and if so, whether it will be a light, medium or massive one. It has much to do with increasing or decreasing the resistance of the individual. So, after all, environment is the chief factor in determining the degree of the initial or subsequent infection, and the quiescence or activity of the infection. The degree or extent of the infection in early life is a factor which should be given careful consideration and it is to this one that I wish especially to call attention.

By certain physical signs and X-ray findings, the degree of the infection may be determined. A positive D'Espine sign is an indicator of tracheo-bronchial adenopathy. The appearance of the hilum as shown by the X-ray will differentiate tuberculous from non-tuberculous glands. The enlarged hilum due to non-tuberculous infections is usually only moderately enlarged and not very dense. It is smooth in appearance, while the tuberculous hilum is usually larger and of greater density, with irregular borders and granular in appearance owing to its infiltration with calcified tubercles. The hilum shadow due to a non-tuberculous infection can be compared in appearance and significance with the hyaline cast found in urine, while the tuberculous hilum can be compared with the granular cast.

After careful examination and observation of over 600 children at the Oklahoma City Tuberculosis Dispensary, I have come to the conclusion that the degree of infection obtained in early life is a very large factor in determining whether or not a child will develop active pulmonary tuberculosis some time in life. From carefully taken histories one will obtain a story of childhood contact in 65 to 80 per cent of all moderately advanced cases of pulmonary tuberculosis. Many contact patients give no history of childhood exposure, due to lack of knowledge of the tuberculous problem when they were children. If the histories of such exposures could always be obtained, the percentage of childhood contact would be quite materially increased.

Fishberg and others have collected a large series of cases showing that conjugal tuberculosis is rare. We have on our records over one hundred cases of moderately advanced pulmonary tuberculosis whose mates we have had the opportunity to examine. We have not found a single case of tuberculosis in the mate unless he had had childhood exposure.

Pulmonary tuberculosis is not inherited, but the majority of cases are contracted from father or mother. This accounts for the belief by both physicians and laity in the past that tuberculosis is inherited. Children may receive very heavy infections, yet probably due to their resistance, the infection is well cared for until after they reach adult life.

As chest men usually see these cases after they are active—in other words, after they are adults, we can only tell them how they should have been protected when they were children, and how to protect the coming generation, but that does not decrease their infection. You obstetricians observe the prospective mother when she has active tuberculosis, and you have the opportunity to tell her about the danger of infecting her child. You pediatricians see the children living in homes where there are open cases of tuberculosis. From time to time during their childhood and adolescence you will examine them and will have a chance to determine the degree of their tuberculous infection. You should teach them about the signs and symptoms of early activity. If this were done, the number of cases of advanced pulmonary tuberculosis would, in all probability, be appreciably reduced. I have known a number of doctors who did not believe that a patient with advanced pulmonary tuberculosis should be told the cause of his symptoms, but that he should die in peace. That might be justifiable if it were a non-infectious disease such as cancer or nephritis. Whenever a patient with open tuberculosis, without knowledge of his trouble, lives in a home where there are children, one may expect to find a heavy tuberculous infection on examining the children.

The following case illustrates how important it is that every patient with open tuberculosis should be instructed about the

danger of infecting children. Not many months ago I saw a grandmother with moderately advanced pulmonary tuberculosis. She had been seen by a physician who recognized the disease as such, but felt that she would enjoy life more if she did not know that she had tuberculosis. The management that he placed her under was very good except for the failure to instruct her about protecting others. Her daughter is a semi-invalid—probably tuberculous. This left the grandmother to care for a six months old child. When the grandmother was questioned about the child's diet, I found that she was so careful about the temperature of the milk that she always tested the bottle before giving it to the child. This afforded means of transmitting to the child probably thousands of tubercle bacilli every two to four hours. If this grandparent had been told about her disease, she would no doubt have used every precaution to protect the child.

By treating a case of tuberculosis we have a chance to save one life, but by teaching that same patient how to care for his sputum in order to protect children, we may save the lives of several. I believe that the decrease of morbidity and mortality due to tuberculosis will not depend so much on better means of treatment, but upon teaching the people the danger of childhood exposure, and upon instructing contact cases about the signs and symptoms of early tuberculous activity.

Discussion: Dr. W. M. Taylor, Oklahoma City, Okla.

I shall confine my remarks to only one phase of prophylaxis in the newborn. We all are convinced of the dire effect upon the tuberculous mother, though the process be not active. Many mothers whose condition is fair can partially nurse their infants during first two or three weeks with no ill effects to themselves or the baby, till by substitute feedings, the baby is put on a suitable modified milk formula.

These infants are often malnourished at birth and by the addition of even small amounts of breast milk their chances for survival are much increased.

I think this much consideration is due the baby in every case, except when the mother is suffering from an active open infection.

Discussion: Dr. C. M. Pounders, Oklahoma City, Okla.

I think the most impressive thing about this subject is the great frequency of tuberculous infections in children. I do not think this has been properly appreciated in the past. It can really be classed as a childrens disease. If we would be a little more alert and watch a little more closely for tuberculous infections in children the number of cases of adult tuberculosis could be materially reduced.

One thing that Dr. Balyeat did not mention and which I think is quite important in children is the tuberculin reaction. In babies under one year of age I think a positive tuberculin reaction is practically diagnostic. Of course as you go beyond this age its value lessens, but even up to ten years of age I think it is of value taken in conjunction with other findings. I think the Von Pirquet is of less value than the intradermal. In the former, unless great care is used, the tuberculin is apt to be removed before it can be absorbed. I have even seen children remove it by licking the place as soon as they thought they were not watched.

I think the D'Espine sign is a very valuable one and should be used more than it is. If those who make frequent examinations would employ it more and become more familiar with it they would find it a very valuable sign in recognizing the enlargement of the tracheo-bronchial glands.

TUBERCULOSIS OF THE KIDNEY

JOHN Z. MRAZ, M. D.
Oklahoma City, Oklahoma

The subject of Renal Tuberculosis is always one of great interest to the Urologist. This is as true of the various phases of the disease, which are still open to discussion as it is of those factors, which have been well established and relative to which there is general agreement among the profession.

While we are interested principally in the known facts which enable us to diagnose and treat a given disease, yet it is important to keep abreast of the theories advanced by recognized investigators. Many a theory becomes, when fairly tested, an accepted fact, which may materially modify our diagnostic or therapeutic methods often with mutual benefit to our patients and ourselves.

Tuberculosis of the kidney is a disease of young adult life and is practically always secondary to a focus elsewhere in the body as in the lung, lymphatic glands, bone, intestine, peritoneum or genitals.

Primary renal tuberculosis is so rare, as to hardly merit mention. Not more than

six or seven such cases are on record. Acute miliary form of the disease is but a part of a generalized tuberculous infection, which always rapidly proves fatal and in which the renal involvement is completely overshadowed by the general picture and is therefore of little practical importance.

Chronic renal tuberculosis, which is the form under discussion is usually hematogenous in origin, sometimes lymphogenous and, rarely, occurs as the result of direct extension from a neighboring organ as intestine or vertebra.

Most authorities believe that the common route of invasion is by way of the blood stream. By it only can we account for the cases that are secondary to a distant focus, as in a remotely situated bone for example. The fact that the earliest involvement is usually in or near the most vascular portion of the cortex, lends added strength to this view. On the other hand, the adherents of the lymphatic origin make the claim that only in this way can it be made clear why most cases are unilateral and it would also explain those cases, whose pathology shows that there had been a primary involvement of the renal pelvis, with secondary extension to the parenchyma.

In this connection, it is interesting to mention the Hypothesis of Noel Halle of Paris. He divides renal tuberculosis into three classes, as follows:

1. Cases of hematogenous origin, these attack the renal cortex first. They show a marked tendency to heal spontaneously and often do so. He believes, that many of the so-called kidney infarcts found at post mortem are in reality healed scars of a previous tuberculosis.

2. Cases of lymphogenous origin; these are cases that have a primary pelvic involvement and are always rapidly progressive ending in destruction of the kidney.

3. Cases showing a combination of features of classes one and two; if a case in class one fails to heal, it falls into class three when the process has extended to the renal pelvis. Likewise a case in class two becomes one of class three, when the process has extended from the pelvis into the kidney substance.

A. L. Chute agrees in the main with Halle, when he states in his hypothesis, that hematogenous renal tuberculosis is always bilateral at first, and tends toward spontaneous healing. If for any reason the process fails to heal in one kidney, then we have a progressive tuberculous process, which sooner or later involves the entire kidney.

If we accept this view it would certainly make it easier to understand why a blood borne infection should so often by unilateral. He contends, that, while the process is bilateral, it is confined to the kidney parenchyma and gives no symptoms, that the process may become progressive in one kidney thereby involving the pelvis and producing recognizable symptoms and is unilateral by virtue of the fact, that the other kidney has in the meantime succeeded in freeing itself from infection.

Many authorities vehemently refute these ideas and maintain, that spontaneous healing never takes place in renal tuberculosis and, that once a kidney is attacked, it is doomed to complete destruction.

It is impossible to prove the hypothesis of Halle' and Chute for the reason, that it is impossible to diagnose renal tuberculosis, while still confined to the parenchyma, and it is admittedly only those cases which become arrested and undergo healing. Once the kidney pelvis is involved it gives rise to definite symptoms and signs, which make its diagnosis possible.

Cases of this type are always progressive and never undergo spontaneous healing, unless one wishes to apply this term to those instances of occlusion with complete caseation or calcification of the entire kidney—the so-called auto-nephrectomy.

It is difficult to see, why an incipient renal tuberculosis should not occasionally heal in like manner, as occurs frequently in the lung and other organs. In reviewing the literature one finds a growing tendency on the part of some authorities to accept this theory as probably true.

While renal tuberculosis is secondary to other foci, the kidney is practically always the primary point of attack, so far as the urinary tract is concerned. The only exceptions to this rule are those rare cases of direct extension to the lower ureter from a seminal vesicle in the male, or fallopian tube in the female.

The very earliest symptom of kidney tuberculosis is often a frequency due to polyuria. Painful urination is soon added, due first to irritating products of inflammation, and later to secondary involvement of the bladder. These symptoms are usually progressively severe, and often associated

with slight terminal hematuria. Frank hematuria does occur, but in infrequent Microscopic blood however, is nearly always present.

While bladder symptoms are usually the first and most prominent symptoms, about twenty per cent of cases present lumbar pain of a dull aching character as the only symptom. Such a case presented itself to the Oklahoma City Clinic recently. Diagnosis was made by cystoscopy, checked up by a positive guinea pig test. It is possible for a kidney to go on to complete destruction without a single kidney or bladder symptom. The only pain present may be in the healthy kidney from distention of the capsule due to compensatory hypertrophy.

General deterioration of health is common in well advanced cases, but is usually entirely absent early in the disease. The temperature is perfectly normal in the early period, later showing an evening rise, and cases of mixed infection may run a septic course. From the above it can readily be seen that the symtomatology may be anything but clear. For this reason a complete history should be followed by thorough physical examination. Urinary studies, cystoscopy and guinea pig test, when necessary.

It would be superfluous to consider the taking of the history or the physical examination in detail.

The urinary studies should include a chemical and microscopic uranalysis, smears and cultures. The findings will always give positive evidence, except in those rare cases with occlusion with secondary clearing up of the cystitis. In this event the urine may be of sparkling clearness, and free from abnormal findings.

With the exception of the cases just mentioned, albumen is always present and may come from the diseased kidney, or be due to a toxic irritation of the healthy organ. Red blood cells and pus cells are constant findings, and the urine is acid in reaction. The urine is sterile to culture unless mixed infection is present. In obtaining a specimen for a search for organisms the meatus should be carefully cleansed and the urine obtained by catheter to avoid contamination by the smegma bacillus which can only be differentiated from the tubercle bacillus by culture, or the guinea pig test.

We have found it quite difficult to demonstrate the tubercle bacillus in smears. Repeated smears thoroughly searched after careful centrifugalization will probably be successful in the majority of cases.

A sterile pyuria in an acid urine containing red blood cells and acid fast bacilli is positive evidence of tuberculosis. The finding of tubercle bacilli without pus is not sufficient for it is well known that patients with pulmonary tuberculosis often have a bacilluria without any kidney involvement.

The guinea pig test is a valuable one when carefully done and should be employed when it has been impossible to find the bacilli in smears. The great disadvantage to this test is the time element, it requiring from five to six weeks to complete the test. Several attempts have recently been made to shorten the time required by this test.

Inoculation has been made following an X-Ray exposure to lower tissue resistance and liver inoculations have been tried. Also a preliminary injection of tuberculin has been given to increase the susceptibility of the pig. These experiments are not conclusive, as yet.

Cystoscopy is probably the most valuable diagnostic measure in renal tuberculosis. With proper care and gentleness cystoscopy is possible in the large majority of cases under local anesthesia alone. I have had to use nitrous oxide but rarely. It is usually satisfactory, but in some cases it fails to abolish the bladder reflex, making bladder distension impossible.

Some men are using spinal anesthesia in these cases with good success. While I have never used it, I intend to give it a trial should I find it impossible to cystoscope a case under local anesthesia or gas.

Bladder involvement occurs early in renal tuberculosis, the first change being an edema surrounding the ureteral orifice of the affected side. In a very short time tubercles are added and are usually found encircling the orifice or grouped near it. A little later these tubercles become superficial ulcers. As the disease progresses the circumference of the ureteral orifice becomes ragged and ulcerated, and later depressed, due to the retraction of the ureter forming the so-called golf-hole orifice. In late cases thick pus may be seen oozing out of the ureteral opening like tooth paste being squeezed out of a tube, as in a case I once examined. As the disease progresses the bladder becomes more or less generally inflamed, but the greatest intensity of involvement is always in the neighborhood of the ureteral orifice of the affected side.

Bladder capacity progressively diminishes until in the extreme cases it may amount to but a few cubic centimeters.

In a case with an acid pyuria negative to culture and containing red blood cells, any of the above described cystoscopic pictures would fully justify a definite diagnosis of renal tuberculosis. A few months ago I made a diagnosis on just such findings in a case, where urinary smears proved negative and the patient's condition was such that a six weeks wait for a guinea pig test was deemed inadvisable. The diagnosis was confirmed at operation.

The rare cases of tuberculous renal occlusion may show a normal bladder except that the affected ureter will be seen to be non-functionating. The ureters should be catheterized. This will give us additional information as to which kidney is involved, whether it is bilateral and will enable us to determine the functional activity of the non-tuberculous kidney. A pyelogram may also be of added help in showing a distorted pelvis or the typical fringing of the pelvic outline, and will usually give some clue as to the extent of the involvement and whether or not a stone is present. When concretions are found they are usually due to secondary calcification. For some unexplained reason tuberculosis rarely attacks a kidney which contains a stone.

Space will not admit of more than a few remarks relative to the treatment of this condition. All evidence goes to show that renal tuberculosis, when far enough advanced to give rise to definite findings, is practically always a progressive disease ending in complete destruction of the kidney. It has been further proven, that bilateral involvement is common in cases of long standing, and, that when this occurs the case is hopeless. And it has been shown that these cases are in continual danger of general tuberculous dissemination, as long as they are harboring an active focus.

Therefore, as a general rule it may be stated, that nephrectomy should be advised as soon after the diagnosis has been made as is consistent with the greatest safety to the patient. Contra-indications to this procedure are bilateral involvement and active tuberculosis elsewhere.

In occluded cases, where the process is apparently latent, and the patient's general health good, it is a matter of judgment as to what to advise. It should be remembered however, that even these cases have been known to harbor active bacilli.

Secondary involvement of ureter, bladder and genitals, which always give rise to extremely distressing symptoms, show a marked tendency to clear up following the removal of the kidney.

An early nephrectomy, while these secondary lesions are still superficial, will usually bring about a rapid clearing up of symptoms caused by them. Therefore, the earlier the nephrectomy the quicker the return to health.

Local treatment for the bladder lesions is usually unsatisfactory. I have seen considerable benefit follow the use of mercurochrome. The Roosing phenol treatment and santalwood oil have proven unaffective in my hands.

Finally, and I believe most important of all, we should not become so interested in the disease that we forget the patient. We must remember that the patient is tuberculous, and that nephrectomy is only an incident in the proper treatment of the case. In view of this he should be given appropriate pre and post-operative care to make him a better operative risk and, by increasing his resistance, aid him in throwing off the effects of the disease, thereby enabling him to regain as large a measure of health as may be possible in the individual case.

Summary

1. There seems no good reason to doubt the possibility of spontaneous healing of incipient tuberculosis of the renal parenchyma.

2. Cases which have involved the renal pelvis are always progressive and, with few exceptions, require nephrectomy for cure.

3. Symptoms are often inconclusive necessitating the employment of various diagnostic procedures of which cystoscopy is probably the most valuable.

4. General management suitable for tuberculous patients is indispensable if the best results are to be obtained.

PYELITIS IN PREGNANCY AND THE PUERPERIUM

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Oklahoma City

Pyelitis as a distinct disease entity has in the past ten years accumulated a vast amount of literature. So much has been written on this topic that its further con-

sideration at this time may seem out of place. There is, however, at least one excuse that can be offered for its further study and discussion, namely, the mistakes which are being made in its diagnosis.

It is a fact of common observation that there is a resident proneness in the professional mind to give pyelitis a wrong name, and often to operate under this wrong impression. This, we think, is due to the making of a hasty, symtomatic diagnosis, not taking the time to make a careful and complete physical examination.

All through life the female is more susceptible to pyelitis than the male, and doubtless latent pyelitis is present in not a few women who become pregnant. This may account for the incidence of pyelitis in the early months of pregnancy before the pressure of the gravid uterus could by its size produce obstructive symptoms in normal ureters. Halstead in his report on twenty-four cases of pyelitis in the Sloane Hospital of New York City found the incidence to be 0.7 per cent. This percentage appears less than should be found in the nonpregnant woman, and pregnancy positively increases the liability to this infection.

If the frequency of pyelitis is based upon the examination of urine taken by ureteral catheterization, then many cases of pyelitis will not be included in the count. In the very nature of things a large percentage of cases must be recognized without a cystoscopy and ureteral catheterization.

If a catheterized bladder specimen of urine contains many pus cells, bacteria, epithelial cells from the pelvis of the kidney, with or without blood cells, and these urinary findings be associated with fever, frequent, painful, or burning urination, pain and rigidity of the abdomen, generally on the right side, and especially if there is pain on pressure in the costo-vertebral angle, the diagnosis of pyelitis is virtually made.

A greater frequency of obstetric pyelitis, and pyelitis in general, will doubtless be the verdict rendered when a greater number of cases have been studied and classified in the hospitals of our country. It is highly probable that many mild cases of pyelitis in obstetric practice have not been recognized. If there is no blocking of the ureter of the affected kidney then no constitutional symptoms may arise, but pus and bacteria are found in the urine.

Many varieties of micro-organisms are capable of producing pyogenic kidney infections, but the bacteria most commonly found are the colon bacillus, staphylococcus, and streptococcus. Kretschmer in his study of two hundred cases of general pyelitis found the colon bacillus in 132 cases; staphylococcus in 28 cases; the streptococci in one case. The typical pyelitis of pregnancy is virtually a colon bacillus infection.

The causes of pyelitis may be classified hypothetically under three headings; first, the bacteriological causes; second, the mechanical causes; and third, the chemical causes. It is relatively common for the colon bacillus to be found in the urine of nonpregnant women, and more common still for this organism to be found in the urine of pregnant women.

Generally, however, this organism is inoperative unless some mechanical factor arises to produce by trauma a lowered resistance to infection in some portion of the urinary tract as an obstruction or compression of the ureters. This mechanical factor becomes operative by a stretching or twisting of the ureters such as takes place in the pregnant uterus as it gradually ascends from the pelvis and generally takes the position of right obliquity in the abdominal cavity. Acute pyelitis is rarely seen before the fifth month of pregnancy. At this time there is added to the stretching or twisting of the ureters the pressure of the growing uterus on the ureters as they pass over the brim of the pelvis. The pressure is nearly always more pronounced on the right side. At this point of greatest pressure the ureters rest on bone, while above and below they are loosely connected with soft structures. The ureters being thin and collapsed when empty and susceptible to great distension, it can be readily seen how pressure at these bony points can decrease the caliber of the ureters resulting in ureteric and pelvis distension with stagnant urine into which the colon bacillus by way of the lymphatics, the blood stream, or the intestines can gain entrance and form a stagnant pool of urine and pus similar to an abscess.

The gravid uterus in the last half of pregnancy also presses upon the intestines causing fecalstasis, fermentation and constipation, thus favoring an increased growth of the colon bacillus.

The physical type of the female with a slender body, flat abdomen, strong abdominal musculature, and small abdominal capacity has a tendency to keep the uterus well pressed backward and downward there-

by favoring increased pressure on the ureters and intestines. That the right kidney carries the burden of nephritic pathology has long been observed. The frequency of the downward displacement of the right kidney compared to that of the left is estimated to be as seven to one. Following repeated pregnancies the mobile right kidney is often found when looked for. It is probable that this frequent displacement and mobility of the right kidney, and its dragging on its pedicle causes congestion by interference with its circulation, thereby lowering its resistance to infection.

The chain of lymphatics and the nephrocolic ligament said to form a connection between the ascending colon and the right kidney may also contribute to the increased frequency of the right kidney to disease over that of the left; the former by affording a more direct route for the colon bacillus from the colon to the kidney, the latter by making a connection by which the weight of the ascending colon can be applied to displace the right kidney downward.

Urologists state when catherizing the ureters a dilation is found above the pelvic brim, and that this dilation is more pronounced on the right side. Dr. Edward B. Cragan of New York found the right ureter more often dilated than the left in the dead bodies of women who had been recently pregnant.

Finally, as to mechanical causes, the right obliquity of the uterus and the usually right obliquity of the diameter of the presenting part of the fetus expose the right ureter to increased pressure over that of the left.

Dr. Frank Kidd, Surgeon in the London Hospital, states the cause of the dilation of the ureters as follows: "This dilation is not, I believe, caused by the pressure of the uterus, but is, I believe, a physiological dilation of the musculature of the ureters set up by chemical bodies or poisons circulating in the blood of pregnant women." He further states. "I think it is certain that the main predisposing cause of the pyelitis of pregnancy is dilation of the ureters. In some cases I have passed ureteric catheters and found that I could draw off immediately an excessive quantity of infected urine, which came away in a steady stream and not in drops as should be the normal fashion. I have noticed in the postmortem room that in fatal cases of eclampsia and other fatal cases of pregnancy there is acute dilation of the ureters. Dilation of both ureters therefore appears to be a constant feature in pregnancy and to be set up by a chemical poison in the blood rather than by pressure of the enlarged uterus on the ureters."

DIAGNOSIS

A working diagnosis of pyelitis gravidarum is generally easy to make provided the physician will take the pains to make a careful complete physical examination, including a chemical and microscopic examination of the urine. In the average acute case he will often be able to make a presumptive diagnosis at the bedside before he has had a chance to get the urinary findings. Increased frequency of urination points oftener to a diseased kidney than it does to a diseased bladder. Frequent and painful urination combined with fever in a pregnant woman in all probability makes the diagnosis one of pyelitis; cystitis can be ruled out as it is not associated with fever. At the beginning of an acute attack there may be an absence of pus in the urine on account of the closure of the ureter of the affected kidney by congestion and swelling. An enlarged and tender kidney can frequently be palpated. If the ureter be blocked pus is not necessarily found in the urine, but tenderness over the costo-vertebral angle of the affected side is always present in acute cases.

Kretschmer in his study of two hundred cases found more than fifty per cent of them bilateral. By the aid of the ureteric catheter he found pus in both sides. In the bilateral cases one side is generally so lightly affected that its involvement could not be detected by other means than ureteral catherization. Occasionally, however, the involvement of both kidneys may be strongly suspected by the increased gravity of the symptoms, by the patient's complaining of pain in both sides, and pain elicited in both costo-vertebral angles by pressure.

The clinical picture of obstetric pyelitis is more clearly defined than is pyelitis in other departments of medicine. It is more acute in its onset, has a higher range of fever, and is more often associated with the classic trio of infection, namely, "chills fever and sweats." It is often characterized by repeated exacerbations, remissions and intermissions of the distressing symptoms which may continue until the end of pregnancy. When the ureter of the affected side drains well the patient may be up and about the house, feeling well with no temperature, and a marked abatement of symp-

toms. If she is treated in a hospital she may recover from the acute attack in two or three weeks, return to her home and with the exception of an occasional upset, she may do very well. This, however, is more often the exception than the rule. More often the patient remains an invalid through the remainder of gestation after which a rapid recovery is expected.

Pyelitis is quite often diagnosed appendicitis. Many cases are sent to the hospitals tor operation with the appendix label on them.

TREATMENT

In the preventive treatment of the pyelitis of pregnancy all primary and localized infections should be thought of and treated, if present, according to modern conceptions of good prenatal care.

Gastro-intestinal derangements as indigestion, constipation and intestinal fermentation should be looked for and corrected. Pregnancy predisposes to intestinal stasis, and though the patient may have a daily movement all cases of pyelitis are found to have large accumulations in the colon and rectum.

The medical treatment first to be instituted is bland diet, forced fluids and free catharsis. As a rule the urine is strongly acid which favors the action of the bacillus coli. The urine should be made alkaline as soon as possible by giving a teaspoonful of sod. bicarbonate or forty grains of potassium citrate every two hours until the urine is alkaline. The above dose should then be repeated every three or four hours, or often enough to continue the alkalinity of the urine for at least one week. The urine should be frequently tested with litmus paper. During this time the urotropin should not be given as it is inactive with alkalies.

Alternating the reaction of the urine from acid to alkaline appears to have good clinical results; but Dr. Kidd emphasizes the importance of keeping the urine alkaline for ten days in acute cases before beginning the acid phosphate of sodium and urotropin in the usual doses.

Dr. Kidd States: "What the exact meaning of the effects of the alkalies in these cases is difficult to determine, but that it exists is an undoubted fact which needs investigation of the biochemist. The solution of this question would, I feel sure, yield results of the utmost value to our knowledge of bacteria and their action on the body. If only this alkalinising treatment were better known, a great deal of suffering and danger could be avoided."

To relieve the pressure of the ureter of the affected side the patient may be encouragd to lie on the opposite side. The knee-chest position for ten minutes three times a day tends to relieve nephritic congestion and promote drainage. Ureteral catheterization and pelvic lavage are rarely indicated in the acute stage. If the pyelitis should not clear up in the first two or three weeks of puerperium a skilled urologist should be consulted.

Often these patients appear profoundly sick and show emaciation, especially when the classic chills, fever and sweats are of frequent occurrence. But the ultimate recovery of so many of them under simple treatment and good nursing has struck thousands of doctors with a happy surprise. If the doctor is tempted to empty the uterus before the stage of viability he is almost sure to make a mistake. Better consult an experienced urologist first. If the pregnancy is not also complicated by toxemia the child will stand the pyelitis remarkably well. The prognosis for ultimate and complete cure in pyelitis must always be guarded. A patient once infected, if she becomes pregnant again, will very likely have a return of pyelitis.

The patient who has once had pyelitis should be thoroughly cured before she becomes pregnant again, and the subsequent pregnancy should receive unusual care and attention. I once had a patient who was bad with pyelitis in two pregnancies. To my surprise she had no trouble in the third. Such an experience must be rare. Pyelitis in pregnancy may be a serious complication, and all cases should have the most solicitous care, and the counsel of a urologist should unusual and dangerous symptoms arise.

Discussion: Dr. H. C. Brown, El Reno, Okla.

There is probably no other disease so frequently mistaken for appendicitis as pyelitis, unless it is Tabes dorsalis.

It has been said that a McBurney scar has come to be of diagnostic import in the diagnosis of Tabes. This equally holds true in pyelitis. One writer has said that 22 per cent of his cases of pyelitis had been previously operated for chronic appendicitis. These mistakes in diagnosis of course are

largely avoidable as a careful history, physical examination, chemical and microscopical urinalysis will in the great majority of cases reveal the true diagnosis. It is all the more important to differentiate pyelitis in pregnancy from some surgical condition demanding operation on account of the extra hazard of surgical procedure during that time.

Pyelitis in pregnancy has been grouped into three types:

1. Renal, with marked localized signs and symptoms pointing to one or the other kidney, but in the great majority the right.

2. General, without localized symptoms but marked constitutional symptoms.

3. Abdominal. Where the symptoms strongly simulate some acute or chronic surgical condition in abdomen as appendicitis. The urinary findings will obtain in all types.

I wish to emphasize what the essayist has said as to the happy results that so frequently obtain from simple treatment as outlined. Oftentimes what appears to be a severe infection and what might first appear to warrant an interference with pregnancy will clear up in a most satisfying way. First rendering the urine alkaline and keeping it so for several days, then rapidly rendering it acid and at the same time administering Hexamethylene—tetramine has been the most effective treatment in my hands. The Colon bacillus which is the infective agent in a large percentage of these cases is a facultative organism. It thrives naturally in an acid media but can gradually accomodate itself to an alkaline media; therefore by changing the reaction of the urine rapidly at a few days intervals it keeps the organism groggy so to speak and renders it more easily destroyed.

Discussion: Dr. W. A. Fowler, Oklahoma City, Oklahoma.

In this excellent paper, Dr. Hatchett very rightly emphasizes the importance of diagnosis. If we inquire of every patient for the symptoms of frequent urination, pain or burning on urination, nicturia, and lumbar pain, and if we examine every patient by gentle hammer percussion over the kidney area and by palpation of the kidney through the abdominal wall, and if we examine the urine of every patient microscopically, we will find that this condition is very much more frequent than is generally supposed.

The treatment which Dr. Hatchett outlines is in keeping with that recommended by the best urologists at this time. I believe that rest is of great importance and that posture is of great benefit in favoring drainage. If there is good drainage, frequent urination and dysuria are the only symptoms. With the impairment of drainage, pain, fever, chills and other septic symptoms become prominent.

With high fever, tenderness and pain, I believe that drainage should not be neglected too long. If posture and general measures do not give relief, drainage is perhaps best accomplished by the introduction of the urethal catheter up to the pelvis or the kidney. Very few cases, however, would require this procedure. Polak leaves this catheter in for twelve hours when it is removed, being reintroduced in twelve hours again as needed for drainage. I believe that lavage under-pressure may do harm and should not be practiced in these cases.

Vomiting, when it is markedly out of proportion to the other symptoms, is suggestive of cortical infection as a complication. The vomiting is probably due to the resulting peritoneal irritation. The prognosis is much graver in these cases. During the last year and a half, I have observed two such cases: one of which had a nephrectomy: the other resulted fatally, autopsy revealing multiple cortical abscesses of both kidneys. The last case developed during the puerperium.

Discussion: Dr. T. C. Sanders, Shawnee.

Pyelitis is a subject which always interests me, since, for the past several years I have given quite a bit of thought to this condition, particularly in children. Pyelitis is a disease which may simulate many other conditions and is sometimes very hard to diagnose, and in all probability is many times overlooked. Our chief trouble in diagnosing it in babies is in being always able to obtain a specimen of urine, around the microscopical examination of which the diagnosis seems to rest. This being true, it strikes me, a proper diagnosis could be more easily made where it complicates pregnancy, since a catheterized specimen of urine can usually be obtained.

"SOME OBSERVATIONS ON PYELITIS."

Read in the Medical Section of the Oklahoma State Medical Association, Oklahoma City, Oklahoma, May 9-10-11, 1922.

L. A. MITCHELL, M. D.
Frederick, Oklahoma

This paper is written by a general practitioner of medicine for the general practitioners who compose a large percent of this section. No attempt is made to present an elaborate study of the bacteriology or pathology, but rather to call your attention to some common-place facts which we meet almost every day. The class of cases to which I am calling your attention is seen first in nearly all cases by the general practitioner.

Pyelitis is defined as an inflammation of the pelvis of the kidney. It is now known to be the cause of a large number of conditions accompanied by fever of obscure nature. I became interested in this disease early in my practice, as so many cases were seen in children which showed fever, vomiting and prostration, and which cleared up clinically in a few days. This was commonly known as Billiousness. It was soon discovered that if the ailment was not due to some evident acute infection, or the throat, the urine would show pus. The acute cases were sometimes followed by a chronic pyelitis which became a focus of infection. The infectious process may extend upward to the kidney proper, and produce a pyelonephritis or indeed minute abscesses of the kidney.

Pyelitis has been found in infants only three days old. It is more common in artificially fed children, and is often thought to be a disturbance of nutrition. Female children furnish about eighty per cent of the cases. This fact has led to the theory of its origin by upward extension through the urethra, bladder and ureter. Most cases are caused by the Colon Bacillus, it being a normal inhabitant of the alimentary canal, it is held that infection reaches the urinary tract by improper methods of cleaning the baby. For this reason mothers and nurses are instructed to clean the anal region from before backward instead of the opposite direction. Other observers maintain that the infection reaches the kidney pelvis through the lymphatics and the blood stream. This theory appears to be very plausible in view of an efficient treatment based on the instillations into the rectum of solutions which, when they are absorbed, travel the same lymphatic route as the infection. There is direct connection between the right kidney and the colon, and the right kidney is more often involved than the left. Pyelitis is frequently the sequel of tonsilitis, scarlet-fever, and other diseases caused by pyogenic bacteria, such as erysipelas. Gonococci, Bacillus Paratyphosus, and other bacteria may be the causative factor. It has been shown that pyelitis may become quiescent for a long period of time, and show up later, as in pregnancy. A kink in the ureter will predispose to the disease by causing a congestion of the kidney and its pelvis. Lumps of pus may temporarily occlude the ureter, and thus lead to pyonephrosis, or indeed perinephritic abscess. At this time no pus will be found in the urine, provided the infection is unilateral. Some cases show extensive damage to the kidney substance, there being only a rim of fibrosed, functionless tissue left. A freely moveable kidney also seems to predispose to pyelitis, and some cases are relieved by restoring the normal position of the kidney by lying in bed.

The point of most importance in the diagnosis is to suspect the presence of pyelitis. Let us not be satisfied with a diagnosis of Billiousness until we have made a microscopic examination of the urine. If, in addition to the ordinary symptoms of so-called Billiousness, we find pus in the urine, we may safely make the diagnosis of pyelitis, provided we can rule out cystitis. There will usually be few symptoms referable to the urinary tract, but there may be frequency of urination. The urine is cloudy and acid in reaction. It must not be forgotten that when the ureter is occluded by pus, there will be none in the urine at that particular time, and frequent examination will have to be made. A cystoscopic examination will not only show whether you have a cystitis, but will also show which kidney pelvis is involved. The pus which comes from the ureteral orifice may be due to a stone in the kidney pelvis, and thus an X-Ray examinantion should be done before any radical treatment is instituted. Hammer percussion over the kidney region posteriorly will elicit extreme pain in most cases. I have seen tenderness in the region of the lower ribs anteriorly in a number of cases, and want to ask if others have seen the same sign. It must not be forgotten that pyelitis will often simulate appendicitis. The tenderness is nearer the border of the ribs, and rigidity is not so marked as in appendicitis. The colic may be present, but

if you will notice carefully the fever comes on earlier in pyelitis than it does in appendicitis. Hence is not a bad idea to examine the urine in suspected cases of appendicitis, especially in the early months of pregnancy.

The prognosis is not considered unfavorable. If recognized early and proper treatment is instituted, recovery is the rule. In children with nutritional disturbances, the outlook is not so favorable. Those cases found in pregnancy usually clear up quickly when pressure is taken off the ureter by delivery.

Under the subject of treatment, Dr. Abt of Chicago says that copious amounts of water taken internally stands first. Insist on the patient taking more water than is its custom. The rendering of the urine alkaline with Sod. Bicarbonate or Pot. Citrate in five or ten grain doses three or four times a day is a favorable treatment. This is especially effective in that form of pyelitis due to the Colon Bacillus, as it does not thrive in an alkaline medium. This alkaline treatment seems to render useless another very useful drug in our armamentarium, Urotropin. To my way of thinking, this is easily the most effective medical treatment, but it does not act in an alkaline medium. The alkali and the urotropin may be alternated, each drug being given by itself for a few weeks at the time with happy results. I have several cases which have shown no recurrence after six or more years after a prolonged course of urotropin. Rectal instillations of a solution of Methylene blue has proved effective in some cases. Recently good results have been obtained with lavage of the kidney pelvis with a one-half per cent solution of Silver Nitrate. It not only clears up the case clinically, but also renders the urine sterile. From one to four treatments have cured the most resistant cases. Vaccines have been used extensively with indifferent results. Best results have been reported from the use of autogenous vaccines. In long standing, obstinate cases, surgery in the form of pelvic drainage or nephrectomy will have to be resorted to.

Discussion: Dr. T. S. Chapman, McAlester.

Mr. Chairman and Gentlemen:

To me this is a very important subject, and one that we average physicians are apt to overlook. I feel quite certain that we have all made the mistake of treating these patients in a rather indefinite or empirical way for "billiousness" as the doctor says, or some other equally vague intestinal disorder, when, if we had exhausted every means at hand to make a diagnosis, all doubt would have been removed and treatment instituted that in a great majority of cases would promote the recovery of the patient.

This condition, as the essayist states, most often occurs in young children and infants. My own personal observation does not show that females are so much more frequently affected than males as statistics show. There is no doubt in my mind that the artificially fed infant is much more subject to pyelitis than the breast fed.

The doctor's "observations" and conclusions are so clear and convincing that I feel it would only be a waste of your time should I attempt to discuss this paper at any great length, for it would be a repetition of what you have already heard. I do wish, however, to emphasize what he says in regard to confusing this condition with appendicitis. It has been done. And as Dr. Mitchell well says: "The point of most importance in diagnosis is to suspect that pyelitis is present" and then prove it or disprove it before we conclude the appendix is involved and call in a surgeon, for looking at things from the angle he does he may agree with you.

After diagnosis is made to my satisfaction it has been my plan to give a brisk cathartic, if this has not already been done, and it usually has been, because we generally have a chain of symptoms something like this: coated tongue, foul breath, nausea or vomiting, rigors, loss of appetite, elevating of temperature and if the pain happens to be in the right side, that makes you think of appendicitis, and even when it is a little too high and more pronounced posteriorly than in front, we may still be in doubt and have in mind a "retrocecal" appendix, but if we are careful and, as Dr. Mitchell says, "suspect" pyelitis, and have the urine examined under the microscope, we will be relieved of doubt in the matter.

When this has been done, I put my patient to bed, keep him on a liquid or semi-solid diet—milk, principally—and alternate with big doses of Urotropin and Acid Sodium Phosphate, each at four hour intervals, and in adults and older children I insist on them taking a full glass of water at each of these two hour intervals, and infants all the water they can be induced to take.

After a few days in bed on this treatment with frequent urinary examinations,

and just when there begins to be some irritation from the Urotropin and the acid urine, I leave off the Urotropin and Acid Phosphate and for the next few days resort to alkalies, for the double purpose of destroying the colon bacilli and relieving the irritation caused by the acid urine.

I have no doubt that lavage of the kidney pelvis with a weak solution of a silver salt is a splendid plan in obstinate cases, but as so many of these cases occur in infants, or very young children, it must be obvious to all that it would be impractical to attempt it in all cases, however stubborn they might be.

ACUTE AND CHRONIC SALPINGITIS AND TREATMENT

JAS. L. SHULER, M. D.
Durant, Oklahoma

To present the subject of Salpingitis, in all of its phases, would certainly cover a field of thought so far reaching that we fear would fail to be interesting, on account of the many causes, complications, and results; therefore we shall only attempt to consider, briefly, this subject; also, we find the subject under consideration so closely allied with diseases of other pelvic organs that it will be found very difficult to clearly set forth the causes and results that we wish to present, without considering also Ovaritis, endometritis and some localized pelvic infections.

The Fallopian Tubes, or Oviducts, are situated one on either side of the female pelvis in the free margin of the broad ligament, extending from each superior angle of the Uterus, along the sides of the pelvis. This organ is usually about four inches in length, the canal in the Tube is very minute and is a continuation of the Vaginal and Uterine canal, the canal in the Tube is very small throughout the greater part, but toward the distal end gradually becomes larger, contracting at its termination, the distal opening communicates with the Ovary and the peritoneal cavity, being especially protected by the Fimbriae.

As set forth in the brief anatomical description we find the Fallopian tube especially situated to receive infections from the Vaginal and Uterine cavities, very especially so some infections which are more definitely prone to follow mucus tracks, than are other germs which are even more virulent in effect, yet less inclined to force their way through closed orifices as we may term the opening from the Uterin cavity to the mucus membrane of the tube.

It should be no great surprise then that we have such a vast number of infections of this organ: the greater surprise is that we do not have even more, when we come to consider the exposure of the Vaginal and Uterine tract to the varied chances of infection.

We shall first consider the most common cause of infection of the Tube, the cause which has become so generally known and almost exclusively recognized as the cause of infection of the pelvic organs, not only considered so by the profession, but by the laity. We find by statistics that Gonorrhoea produces, by far the greater proportion of infections, acute and chronic, of the Fallopian tube. As a general proposition, as given by some authors, the gonococcus is the only germ that will spontaneously invade the normal, non-puerperal uterus and tubes. There are, of course, some exceptions, perhaps, in children where we may expect that the mucus membranes of the uterus and of the Tubes are less resistive, as we find the case of children in childhood diseases, but the exception is very rare, in respect to these organs.

Purulent inflammation beginning in the vagina or uterus extending on to the tubes, may be considered as almost certainly Gonorrhoeal. This, of course, should be confirmed by excluding the chance of a recent puerperal condition which might give the chance of infection from other Bacterial causes, as from the use of instruments or puerperal possibilities. The probability of Gonorrhoeal infection is increased if the infectious symptoms began within a few weeks after marriage. Again, we must not overlook a fact that in some instances the vaginal and uterin disturbances in Gonorrhoea were not sufficient to be specially noticeable, but where inflammation in the tubes and pelvic area began without any very apparent cause; also we must not overlook the possibility of gonorrhoeal origin where acute symptoms follow miscarriage or a full term pregnancy, as we may by careful inquiry, find that a specific infection had existed previous to delivery or even antedating pregnancy. Demonstrations are claimed where specific germs, gonorrhoeal, have remained dormant in the lower genital track for a time and immediately extend upward through the uterus and to the tubes and peritoneal cavity following a labor or

miscarriage. The extension of gonorrhoeal infection is almost sure to be along the uterin mucosa into the tube, and this germ of infection very seldom passes through the tissues. The characteristic lesion of gonorrhoea is to produce pyosalpinx, and usually without involving the ovary, or of producing general peritonitis and we may state that the greater proportion of pus tubes are caused from gonorrhoeal infection.

In the clearly gonococcic infections the bacteria are usually found to be absent within two to four months after infection. In some instances bacteria may be found after several months or a year, but the virulency of the infection will have passed till there is slight chance of setting up active inflammation in operating in such cases.

The time limit of immunity in Tubo-gonorrhoeal infections is to some degree, speculative and upon this account a conservative delay should, in all cases, have first consideration, before operative treatment is resorted to. Also we must not forget that active gonorrhoeal pus even though in a seeming quiescent mass, will cause serious complications if interfered with. Another reason for giving time before resorting to operative measures, is many of the pelvic inflammatory masses and perhaps pus tubes, disappear or subside to such an extent, as to render almost complete relief to the patient.

Special thought should be given to the ordinary means of treatment, of the recently infected tube, or which may be better, special attention to the vaginal and endometral involvement before the infection reaches the tube and in this stage of infection, I would give first place in treatment to the use of bacterines. In all specific (Gonorrhoeal) infections we have no means of treatment that will give the results that we may obtain from the proper use of gonorrhoeal bacterins or phylacogens, but to get results, this remedy must be administered promptly in sufficient dosage and often repeated. One C. C. of Mulfords, or P. D. Phylacogen, (or any reliable make of Bacterin is all right,) given twice daily and increased in amount, should within a few days modify the acute symptoms and has a very great influence in preventing extension to the Fallopian tubes, and even after infection in the tubes, I have thought, often controlled the inflammatory process to such an extent as to limit the inflammatory exudate and save the tube from a virulent accumulation.

In conjunction with this is rest in bed, cold or hot applications, and other pallative measures. I think just at this point, careful warning should be given that no operative disturbances be resorted to, such as, curetment or uterin sounding or manipulation whatever; however, viginal antiseptic irrigation might be appropriately given.

I wish to lay special stress upon the extreme majority of infections of the tube from the gonorrhoeal bacteria as a guide to the admissibility of operative procedure, as an operation for removal of infected tubes and ovaries or localized or unlocalized abscesses in the pelvic cavity when from this cause, when sufficient time has elapsed for immunity of the involved organ and surrounding area by death of the specific bacteria. There is no definite time limit after infection for guidance, however, we might say four months would make an average time for safety, yet a much earlier date might be accepted for operation, and especially, if disturbing symptoms should exist; however, if the general symptoms are gradually subsiding, I think it best to give much longer time, even six to twelve months; as often the inflammatory area immediately surrounding an infectious deposit will gradually subside and leave a field of operation in a much more favorable condition.

As previously indicated in this paper I wish to especially stress the importance of differentiating between gonorrhoeal and streptococcic infection of the tubes and adjacent organs. The principal differentiating thought must depend upon the circumstances under which infection takes place. If infection should take place following ordinary labor or abortion, we should usually conclude that we have the streptococcic infection, but this should be considered in conjunction with other symptoms.

In contra distinction to the operative procedure and safety in gonorrhoeal infection of the tube and adjacent pelvic organs it must be borne in mind that streptococcic infections afford much more unfavorable results in operative treatment, from the fact that this bacteria does not lose its virulency by lapse of time, and when possible, to control severe symptoms; otherwise operative procedure should ordinarily be delayed or not resorted to at all; however, abdominal operation should be advised in acute disturbances, when in spite of paliative measures the trouble is showing a serious tendency and threatening the life of the patient.

The ultimate result of acute salpingitis depends greatly as to the virulency of the infecting bacteria.

If the patient can be tided over the acute stage of an attack without operation the following terminations may take place. In the course of time the germs are destroyed, the pain disappears, the serous exudates are greatly absorbed, the patient comes to feel well and the functional activity is seemingly restored, in such cases some adhesions remain. It should be noted that a favorable termination is less likely to take place from gonorrhoeal infection than from other infections. The danger to life is not so great as in other forms of infection, but the final danger to health is much more marked in a larger proportion of cases and the acute trouble is followed by more serious chronic pelvic inflammation, causing sterility and other lasting results. The sterility being due to the resulting infiltration and adhesions that include the tubes. A large percent of acute tubal infections result in chronic conditions of the tubes and surrounding tissues with the attendant mass of exudate with a focus of chronic inflammation which acts as a source of constant irritation, causing pain, menstrual disturbances and frequent attacks of pelvic peritonitis.

Discussion: Dr. J. S. Hartford, Oklahoma City.

I wish to confine my remarks principally to gonorrheal salpingitis. It is well to think of the pathology of this condition; we remember that the infection follows an infection of the urethra, the vagina, the cervix, and is carried along the mucous membrane of the uterus into the tubes where there is an inflammation of the tube which involves not only the mucous membrane but the wall of the tube, causing it to kink upon itself and if the inflammation continues the distal end of the tube is sealed up and the proximal end is closed, developing in the tube. A fluid may or not be pus, the tube falling back into the cul de sac where it may become adherent to intestine, uterus or ovary.

I believe that acute salpingitis should be treated in a palliative way; rest in bed; ice bag to abdomen; hot vaginal douches, two gallons at a time, two or three times a day with retention enema of four to six ounces of normal saline solution, given every three to six hours as advocated by Kuhn. Many of these cases will clear up under this treatment and unless the tube is permanently closed will recover with functionating tubes. After two or more attacks the patient becomes operative and salpingectomy should be done with a careful consideration of the circulation of the ovary as to the development of future cysts.

Dr. A. L. Blesh, Oklahoma City.

In this paper the author has covered a wide range. The paper in connection with the set discussions leaves but little territory uncovered.

So widely did the author range however, that of necessity some points were not made altogether clear.

First, I cannot agree that an acute process is of itself a contra-indication to operation, although I am well aware that in saying this I am opposing myself to most authorities. As to the salvage of infected tubes, my experience is distinctly unfavorable. In what appeared to be unilateral involvement at the time of operation, the apparently good tube being conserved, the patients have returned to me or gone elsewhere subsequently to have the remaining tube removed. This is especially true of gonorrhoeal tubes. Realizing the persistence of this infection elsewhere, even in accessible locations, less ought not to be anticipated here in a location absolutely inaccessible to treatment.

We have demonstrated in our clinic that the idea that there is a special danger in surgically attacking acute salpingitis is a lingering superstition founded upon tradition. This same tradition stayed our hand for a long time in acute appendicitis and cholecystitis and cost many lives and a great deal of morbidity.

Second, in the conservation of the ovaries and uterus after salpingectomy there is something to be said. The uterus and ovaries will as a rule be found dragged down in the pelvis by the heavy tubes where they are usually found bound down firmly by adhesions. If now the tubes are simply enucleated and the ovaries and uterus left as they are, they will continue to cause trouble and the ovaries will in addition undergo cystic degeneration and will ultimately have to be removed with the uterus. As a secondary operation this will often be most difficult. It has been our custom in the Oklahoma City Clinic to suspend the ovaries to the parietal peritoneum anteriorly and fix the uterus flatly by its anterior surface to the abdominal fascia, leaving no

open spaces for intestinal incarceration. This procedure has contributed much in our hands in ovarian conservation and the subsequent comfort and well being of the patient.

Third, a few remarks relative to the kind of infection we are dealing with may not come amiss. In a broad way, it is possible to say at the time of the operation in chronic cases whether it is a gonorrhoeal or a streptococcic infection. In the gonorrhoeal types a line of cleavage is as a rule easily found by the enucleating finger of the surgeon. This is probably due to the fact that the process being chronic or at most subacute, time enough exists for a leucocytic cofferdamming of the infected area from its surrounding, thus more or less segregating the diseased from the normal tissues. On the other hand the streptococcic types are more acute and tend to lucocytic infiltration and an actual fusion and no line of demarcation results.

THE TUBERCLE BACILLUS

The science of bacteriology is still too young to afford any very detailed pictures of the life history of the micro-organisms with which it deals. It is not long ago that they were usually depicted in the guise of the most baneful enemies to mankind. Thus there are accounts of "the swarms of germs present almost constantly in our noses, throats, stomachs, bowels, etc.," awaiting the chance they have been looking for—to break through the cell barrier and run riot in the body. The beneficent work of bacteria has received recognition more tardily. To the species which help rather than hinder the tasks of mankind and the higher animals, *Long has paid this well deserved tribute:

> **Some of these are very adaptable, wonderfully equipped foragers, not overly particular, within reasonable limits, about the temperature at which they work or the form in which the great classes of foodstuffs are supplied to them. They grow in relatively large masses, many dying that others may live, and in their process of dissolution many kinds of them liberate powerful ferments which make more food available for the rest. In view of their relation to organic decay they have received the name of "saprophytes." Etymologically they are decay-growers. They live their day, grow, die and decay themselves, and by virtue of their involuntary sacrifice serve the high purpose of maintaing those great cycles of the elements in which a certain amount of carbon, nitrogen and sulphur is continually available in a mobile state suitable for the nutrition of other forms.**

There are bacteria of other types which serve no such useful purpose. Some of them are extremely helpless in "the region of bounteous plenty outside." They crave a condition of parasitism in which almost inevitably they come into conflict with the body cells of the host. The modern story of immunology tells of the devices by which many marauding micro-organisms are converted from dangerous enemies into harmless guests.

For obvious reasons, the bacillus of tuberculosis has been the subject of more intensive study than have most of the other harmful bacteria. Its metabolism, the product which it elaborates, the reactions which it excites, and the modifications which it may undergo in different environments are some of the topics which have received investigation in recent years. We recall few more trenchant descriptions in the study of disease than that which Long has given of the first link in the progression of tuberculosis, the tubercle bacillus: "a wax-armored micro-organism, maintaining itself in necrotic tissue, picking and choosing its nutriment from the heterogeneous mass set before it, utilizing the glycerol of hydrolyzed fats, and probably building its wax therefrom, taking ammonia from certain of the amino-acids produced in the digestion of dead protein, utilizing others directly to speed up the process of synthesis of its own protein, autolyzing to a slight extent, sufficiently to sensitize the surrounding host to its diffusible protein products, being carried by the lymph, by phagocytes and otherwise, to new soil, there to be met my a non-specific foreign body response, which in the end operates to produce anemia and death of the isolated cells." Then we have the failure of that dead tissue to autolyze, Long adds, perhaps because of the presence of ferment-inhibiting substances within the bacillus—the phenomenon of caseation. Finally, he concludes, there is more or less absorption of foreign protein from that focus, that of the bacillus itself and that of the disintegrating tissue, both toxic to the body protoplasm, both capable of causing fever and stimulating the metabolism of the host, so that in severe cases the typical picture of consumption ensues. Such a masterful summary would have been impossible only a few years ago, because of the meagerness of our knowledge. Today it points the way to the further investigation of prophylaxis and therapy.—**Jour. A. M. A., Dec. 2, 1922.**

*Long, E. R.: The Biochemistry of Tuberculosis, Bull. Johns Hopkins Hosp. 33:246 (July) 1922.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive the Journal should call for immediate notification of the editor, 508 Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

EDITORIAL

MUSKOGEE'S SOLDIER HOSPITAL ACCEPTED.

The State Hospital, at Muskogee, erected by direction of the Oklahoma Legislature at a cost of $500,000 has been initiated, passed the gamut of every conceivable attack, been weighed and found not wanting in any particular, inspected by departmental sleuths without number and in the final verdict, holds the stamp of the highest Federal approval. This is due to the action of the Veteran's Bureau, Washington sending a commission headed by Dr. Hugh Scott, Acting Director of the Bureau to Oklahoma to investigate the matter and then, after approval, sign a lease which in effect conveys the institution to the Bureau.

The building is now complete except the very minor finishing touches and it is thought it will be ready for occupancy by the first of the year. No announcement has been made as to who will be appointed as Superintendent.

This ends a long, discouraging task, and ends it with great credit to the State of Oklahoma and the commission directed by the State to erect the buildings. Everyone connected with the work speeded it to the utmost, so rapidly was it accomplished that it is a matter of congratulation that Oklahoma is one of three states only, which, so far have provided adequate hospitalization facilities for veterans of the World War. Physically, architecturally and from every standpoint the institution could hardly be improved. Erected to withstand the ravages of time it has one of the most beautiful settings to be imagined. Its location, Honor Heights Park, is one of the highest eminences in this part of Eastern Oklahoma and from every angle the visitor is given a view of a magnificent country consisting of river valley, plains, distant hills and an attractive little city. Its connection with the City of Muskogee is by electric lines and modern roads, so that no one having occasion to visit it will be occasioned trouble.

It is expected that patients will be received about the first of the year.

DO NOT FORGET YOUR COUNTY SECRETARY.

Our members are advised that every county secretary has been supplied with the necessary remittance blanks for his use for transmission of dues for the year 1923. In this connection it should not be overlooked that, as a rule, the task of collecting and forwarding dues is "wished on" to the secretary, that he is not paid, that it is just as much the busines and duty of the member to help his secretary by promptly sending in the small amount necessary, as it is the business of the secretary to waste his time in the thankless task, so, SEE YOUR SECRETARY should be your immediate concern. It must not be forgotten either that failure to have your name in good standing in the office of the State Secretary before the end of January can cause you an unnecessary and useless financial loss all out of proportion to the small amount of dues collected. The annual dues are $4.00, that is **if they are paid in January,** after that time the dues are $6.00. That is a very small matter compared with the possible

loss, we yearly note, due to neglect of the matter in the loss falling upon the member who suddenly finds himself confronted with a malpractice suit, but who has forfeited his right to defense simply because he neglected the small warnings voiced above. In order to settle the matter and be right about it SEE YOUR SECRETARY.

Editorial Notes—Personal and General

H. C. Council, Kinta, writes the JOURNAL that there is room at that point for a competent physician. Those interested are requested to write him.

Dr. L. Haynes Buxton, Oklahoma City, has filed suit asking $53,000 damages alleging personal injuries received when a beam used repair work on the American National Bank, fell and seriously injured him.

Dr. R. M. Church, Stilwell, has moved to Claremore.

Dr. A. L. Mobley, Lehigh, has located in Eufaula.

Dr. A. C. Lucas, Castle, and Miss Grace Phillpots were married in Okemah November 20th.

Dr. W. H. McBrayer, Idabel, was painfully injured when his car skidded into a ditch near Hugo. Dr. McBrayer was transporting a patient to the hospital when the accident occurred.

Dr. A. S. Risser, Blackwell, read a paper on "Appendicitis" at the meeting of the Tri-County Medical Society, when physicians of Cowley and Sumner Counties, Kansas and Kay County, Oklahoma, met at Wellington, Kansas, November 16th.

Mrs. Benjamin H. Brown, Muskogee, offers for sale the library of the late Dr. Benjamin H. Brown, which is one of the best collection of works ever noted. Those interested should write Mrs. Brown.

Dr. Geo. H. Wallace, Cheyenne, has located in Duncan.

Dr. John R. Walker, Enid, was recently elected president of the Kiwanis Club of that city.

Drs. J. E. Hughes and F. L. Carson, Shawnee, "brought back a dear" after a hunting trip in the Kiamitchi Mountains early in December. Dispatches do not indicate which of the gentlemen shot the deer.

Drs. C. M. Bloss and Robert Keyes, Okemah, have purchased a site and begun the erection of a hospital building.

Greer County Medical Society elected the following officers for 1923: President, J. B. Hollis; vice-president, E. W. Mabry; secretary-treasurer, E. M. Poer; Mangum. Delegate, C. C. Shaw, alternate Frank H. McGregor, Mangum.

Pittsburg County Society—President, McClellan Wilson; vice-president, C. T. Harris, Kiowa; secretary-treasurer, F. L. Watson; delegates F. J. Baum, J. W. Echols; censors J. C. Johnstone and L. C. Kuyrkendall, McAlester.

Rogers County elected: President, Wm. P. Mills; vice-president, George Strickland; secretary-treasurer, L. H. Henley, Claremore; delegate, W. A. Howard, Chelsea.

Pushmataha County elected: President, H. C. Johnson, Antlers; vice-president, George Robinett, Albion; secretary-treasurer, J. A. Burnett, Crum Creek; censor, J. C. McGinnis, Antlers.

Ottawa County Society elected: President, R. H. Harper; vice-presidents, J. D. Bewley, Miami, E. S. Leisure, Afton, I. Phillips, Picher; secretary-treasurer, G. Pinnell, Miami.

Creek County Society met in Sapulpa December 7th. Dr. R. M. Sweeney acted as toastmaster, presenting Mrs. G. H. Wetzel, who tendered the toast "To the Doctors," and Mrs. Ben C. Harris, who gave a recitation. Dr. Ralph V. Smith, President-elect of the State Association and Mrs. Smith were guests of the occasion. The election of officers resulted in Drs. W. G. Bisbee and E. W. Reynolds, Bristow, being selected as president and secretary-treasurer for 1923.

DOCTOR GEORGE S. TURNER

The people of Pittsburgh County in general and the members of the Pittsburgh County Medical Society in particular were shocked and grieved to hear of the sudden death of Dr. George Samuel Turner of Krebs, Oklahoma, which occurred at his home the night of Oct. 25, 1922.

Dr. Turner was born in Boone County, Missouri, April 1, 1870. He was the son of George and Elizabeth Turner. His medical education was obtained at the Missouri Medical College from which institution he graduated in 1895. In 1897 he was married to Eugenia Stewart and to this happy union were born two children, Lowell and George, both of whom are now students of Oklahoma State University.

Dr. Turner established himself in the practice of medicine in Krebs, Oklahoma, in 1898, and during all these years he has religiously devoted himself to taking care of the physical ills of the people of this locality. His willingness to always care for these people and give them the best possible service, irrespective of their ability to pay, endeared him to the hearts of all with whom he came in contact.

Dr. Turner has held office in his County Medical Society, and was a member of the State and American Medical Associations. His active membership in many fraternities speaks of the high esteem in which he was held by his fellow-men. He was a member of the M. W. A., A. O. U. W., A. F. & A. M., 32 Scottish Rite, Knight Templar and Shriner.

The Pittsburgh County Medical Society at a special meeting drafted appropriate resolutions which were presented to the family. This society attended Dr. Turner's funeral in a body and in every manner showed their great respect for their departed colleague.

Abstracts, Observations from Current Medical Literature

THE WORK OF THE A. M. A. CHEMICAL LABORATORY

When some seventeen years ago the Council on Pharmacy and Chemistry began its work of turning the light on proprietary medicines, its main concern was to let physicians know the composition of many of the proprietary medicines widely advertised in medical journals. At that time the exposure of false or vague and meaningless declarations of identity was considered of basic importance. This fact is shown by the name of the Council and by the appointment of such men as Harvey W. Wiley, then chief of the U. S. Bureau of Chemistry; his associate, Lyman F. Kebler, an authority on drug analysis; Martin I. Wilbert, noted for his work in scientific pharmacy; Samuel P. Sadtler, then professor of chemistry at the Philadelphia College of Pharmacy, and Professors C. S. N. Hallberg and W. A. Puckner, then teachers at the University of Illinois School of Pharmacy. This need for work which would bring home to the medical profession the essential secrecy of the drug preparations which they were asked to prescribe led also to the establishment of the A. M. A. Chemical Laboratory under the directorship of Professor Puckner.

The initial report of the Council gave the medical profession the first definite statement of the composition of some of the acetanilid mixtures then so widely exploited as headache remedies. Following this came reports from the Council which gave the results of chemical analyses of such proprietaries as "Tyree's Antiseptic Powder," "Uron," "Thialon," "Sulpholythin," "Labordine," "Campho-Phenique," "Oxychlorin" and "Saliodin." Though many of these preparations were offered to the profession as new chemical discoveries and endowed with imaginary and bizarre chemical formulas, they were, in fact, simple mixtures of well known chemicals, and their analysis presented little difficulty.

As a result of this work of the Council and the laboratory, most promoters of pharmaceutical specialties today know better than to invest money in the exploitation of mixtures the sale of which could be interfered with when once the inevitable happens and the composition of the nostrum is disclosed. But this does not mean that today the composition of all proprietaries is correctly declared. Through ignorance, incompetence or by design, proprietary medicines are still to be found sailing under false colors with regard to their composition. The work of the Chemical Laboratory, however, has become more difficult with these changed conditions. Instead of analyses of mixtures of well known drugs, the laboratory has to do not with the obvious, but with new compounds of novel composition which possess neither the chemical composition nor the constitution ascribed to them. The report of the Council on Pharmacy and Chemistry on "Galyl" that appears in this issue * is an example of the more difficult character of work now required of the laboratory.

When "Galyl" was first put on the market, it was claimed to be—and probably was—a compound consisting of two arsphenamin molecules linked together by phosphorus groups. Its administration, however, required manipulations which made its preparation for injection as difficult as that of arsphenamin. With the growing popularity of neo-arsphenamin, the manufacturer of Galyl felt the need of an improved, easily administered preparation. The result was the "new" Galyl which is now on the market. This is to be had in solution ready for administration or in the form of a powder which is easily prepared for injection. Fortunately for the profession and public, if unfortunately for the promoter of Galyl, the A. M. A. Chemical Laboratory investigated this preparation and reached the conclusion that giving this product amounts to the administration of arsphenamin (in the form of the sodium compound) with extraneous inorganic material, and that the "new" Galyl is an unessential and useless duplication of the well established arsphenamin.

Involved and difficult as this work was, it is of the greatest value to our profession, for it obviates the need of comparative clinical trials of Galyl with arsphenamin. The work of the A. M. A. Chemical Laboratory makes it almost certain that Galyl is, for all practical purposes, nothing more than sodium arsphenamin.—J. A. M. A., Nov. 11, 1922.

***Galyl: Propaganda for Reform Department, page 1706, Journal of the Amer. Med. Ass'n. of Nov. 11, 1922.**

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REPORTS ON ACTINOMYCOSIS DESIRED.

To the Editor:

I am endeavoring to make a complete study of the distribution of human actinomycosis in this country. The number of cases reported in the literature is surprisingly small, and I know that the disease is not so rare as is sometimes thought. I shall greatly appreciate hearing directly from any one who has had experience with this disease, and desire to know concerning case histories the following: age, sex, occupation, residence, state in which the disease was contracted, location of lesion, duration of symptoms, and any special points of interest connected with the treatment, outcome of the disease, or necropsy findings.

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